



# BASIC ASSESSMENT REPORT

THE PROPOSED DEVELOPMENT OF ERF 1327 AND 1328,  
STRUBENSVALLEI EXT 24, CITY OF JOHANNESBURG

**Comment Period: 1 December 2021 – 1 February 2022**

**Proponent:**

Renico Construction (Pty) Ltd.

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22040-Strubensvallei Ext 24

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# EXECUTIVE SUMMARY

## 1. Overview

The proposed Strubensvallei Ext. 24 will involve the development of Erf 1327 and Erf 1328. The site is affected by the future Metro Boulevard planned by the Johannesburg Roads Agency which is excluded from the project footprint. Necessary access, internal roads and services will also be put in place.

The details of the proposed development are provided in **Table 1** and is followed by the Locality and Aerial Locality Map of the Development in **Figure 1** and **Figure 2**.

**Table 1: Details of planned development**

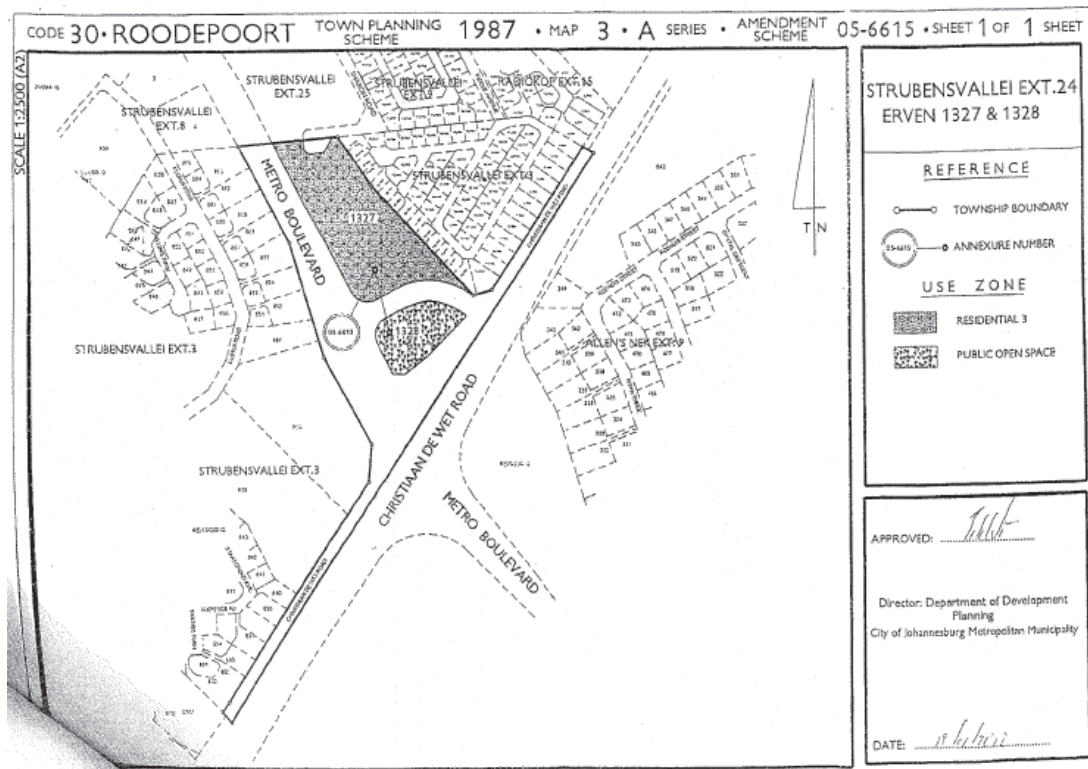
	Erf 1327		Erf 1328
	Permissible/Minimum Required	Actual	
<b>Zoning</b>	Residential 3	Residential 3	Public Open Space
<b>Site Area</b>	1.9724 ha	1.9724 ha	0.63 ha
<b>Height</b>	3 Storeys ( <i>with council consent</i> )	3 Storeys ( <i>combination of 2 and 3 storey buildings</i> )	N/A
<b>Coverage</b>	40%	30%	N/A
<b>Floor Area Ratio (FAR)</b>	0.4	0.36	N/A
<b>Density</b>	40 units per hectare	36.50 units per hectare	N/A
<b>Number of units</b>	79 units	72 units	N/A
<b>Number of Parking Bays</b>	166 parking bays	169 parking bays	N/A
<b>Refuse Area Details</b>	41 m <sup>2</sup>	45.95 m <sup>2</sup>	N/A

**It should be noted that whilst the development includes both Erf 1327 and 1328, the development footprint is limited to Erf 1327 as Erf 1328 will remain as public open space and will not be developed.**

**Further, please note: a townplanning application has been submitted to the City of Johannesburg and the layout plan approved in 2011. Conditions of establishment were subsequently provided on 16 September 2011 and the township proclaimed on 11 March 2014. Figure 3 shows the proclaimed township layout.**

**In addition, an Environmental Authorisation process was undertaken in 2011 and was subsequently approved by the Gauteng Department of Agriculture and Rural Development (GDARD) on 15 December 2011 (GAUT:006/11-12/E0075). Whilst this EA has since lapsed, this current assessment (including new specialist studies) have determined that impacts related to the development can be satisfactorily mitigated as such this Basic Assessment Report recommends the project be approved.**





**Figure 3: Proclaimed Township Layout**

**Figure 4** provides the proposed site plan for the Development. This plan has been developed through discussions with the technical team, town planners and environmental specialists and incorporates a number of requirements including:

- The future Metro Boulevard road reserve<sup>1</sup>;
- The required Stormwater attenuation (outside of the wetland and associated wetland);
- The necessary recreational areas (play areas) as required by the City of Johannesburg;
- The Conditions of Establishment issued by City of Johannesburg as associated proclamation notice; and
- The findings of the wetland buffer assessment which was undertaken as part of the Wetland Assessment. Due to the site and wetland conditions, the wetland PES and the ongoing anthropogenic impacts it was concluded that the required buffer for the wetland in terms of the proposed development and perceived future impacts would require the following buffering requirements:
  - *Construction Phase Buffer Required* – 15m – [specific mitigation is required during this phase – main focus on siltation and erosion control]
  - *Operational Phase Buffer Required* – 15m

Please note that the aim of this preliminary plan is to provide an indication of the development footprint and its relationship to environmental sensitivities (in this case the wetland buffer). It should however be

<sup>1</sup> Please refer to Section 5 of the Executive Summary for more information on this.



noted that this SDP can only be finalized during the town planning approval process. **A copy of the final SDP will then be submitted to GDARD.**

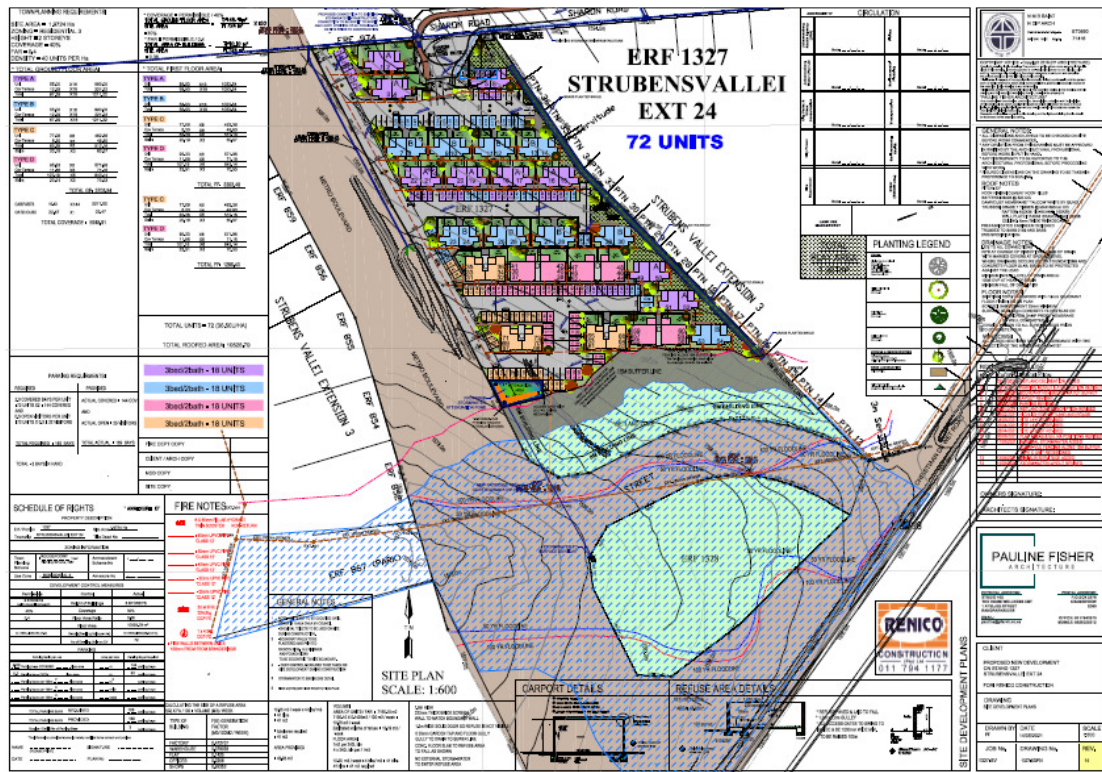


Figure 4: Preliminary Site Plan

## 2. Water and Sewer Services

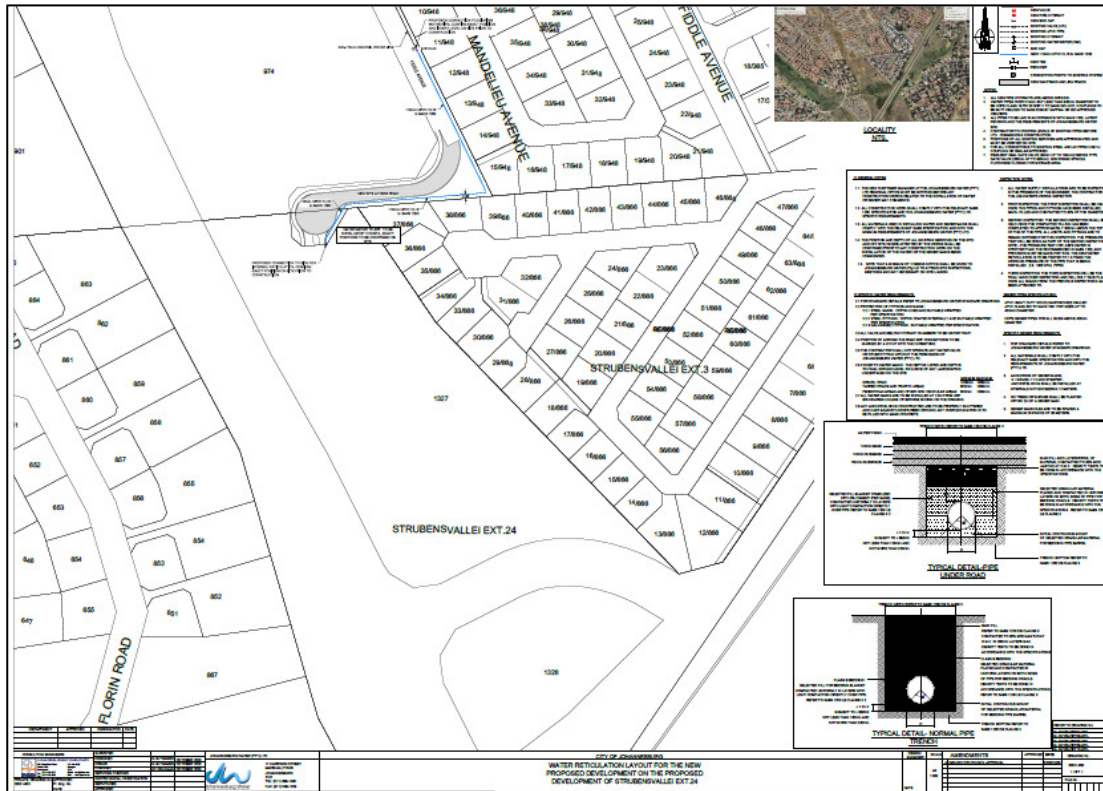
A Water and Sanitation Outline Scheme Report has been developed by C-Plan Development Consultants and is included in Appendix G of the Basic Assessment Report.

In terms of existing services, the Study found that there is an existing 110mm-diameter Council water pipes within the Fiddle Avenue Road Reserve to the North of the study site. A new 110 mm diameter mPVC pipe (SANS 1283) will be put in place within the new access road and will connect to this existing pipe. The length of this connection is approximately 180m.

This pipeline will be constructed to Johannesburg Waters requirements as well as the necessary SABS Standards and handed over to Johannesburg Water upon completion and acceptance of the installed water infrastructure. An internal reticulation system will also be put in place but will remain the responsibility of the developer and will be maintained by the Section 21 Company for this development.

All fire hydrants will meet the standard requirements of the Johannesburg Fire Department.

Figure 5 shows the new 110mm water connection pipeline.



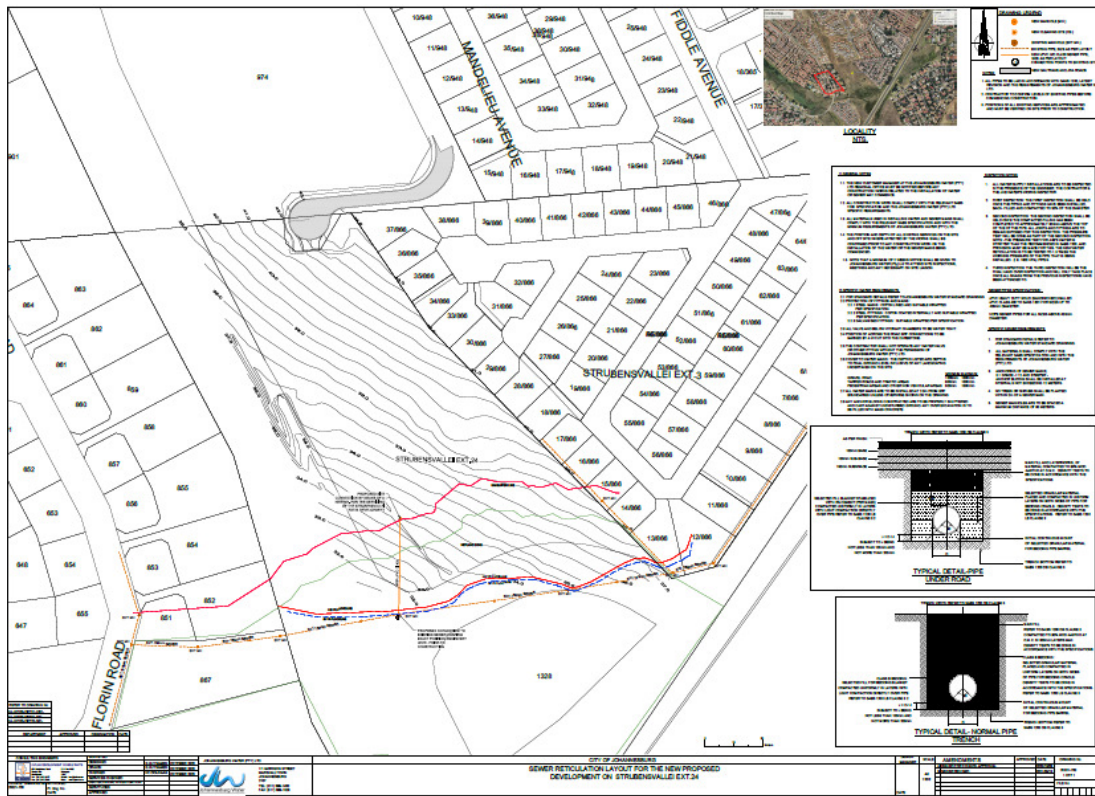
**Figure 5: External Water Connection**

In terms of Sewer, there are existing 150mm-diameter clay Council sewer pipe running along the Southern Boundary line of the development situated within the flood lines. In order to service the proposed development, a new 160mm-diameter uPVC CL 400 H/D pipe will connect into the existing sewer system by means of a new manhole. This new connection pipeline is approximately 51m in length.

All materials, construction and testing of the sewer reticulation will comply to the requirements of Johannesburg Water as necessary SABS Standards. Pipes will consist of uPVC Heavy Duty Class 400 as per SANS 1601. Manholes and chambers shall be constructed as specified in SANS 1294 with manholes comprising of precast concrete with dolomitic aggregate or fibre-cement rings (min. 1,05m nominal diameter). Manholes deeper than 3m shall be a minimum of 1.5m in diameter.

In addition, internal sewer reticulation will also be put in place and will remain private and maintained by the Section 21 Company for this development.

**Figure 6** shows the new 160mm diameter connection as well as the existing line.



**Figure 6: Sewer Layout**

### 3. Stormwater Services

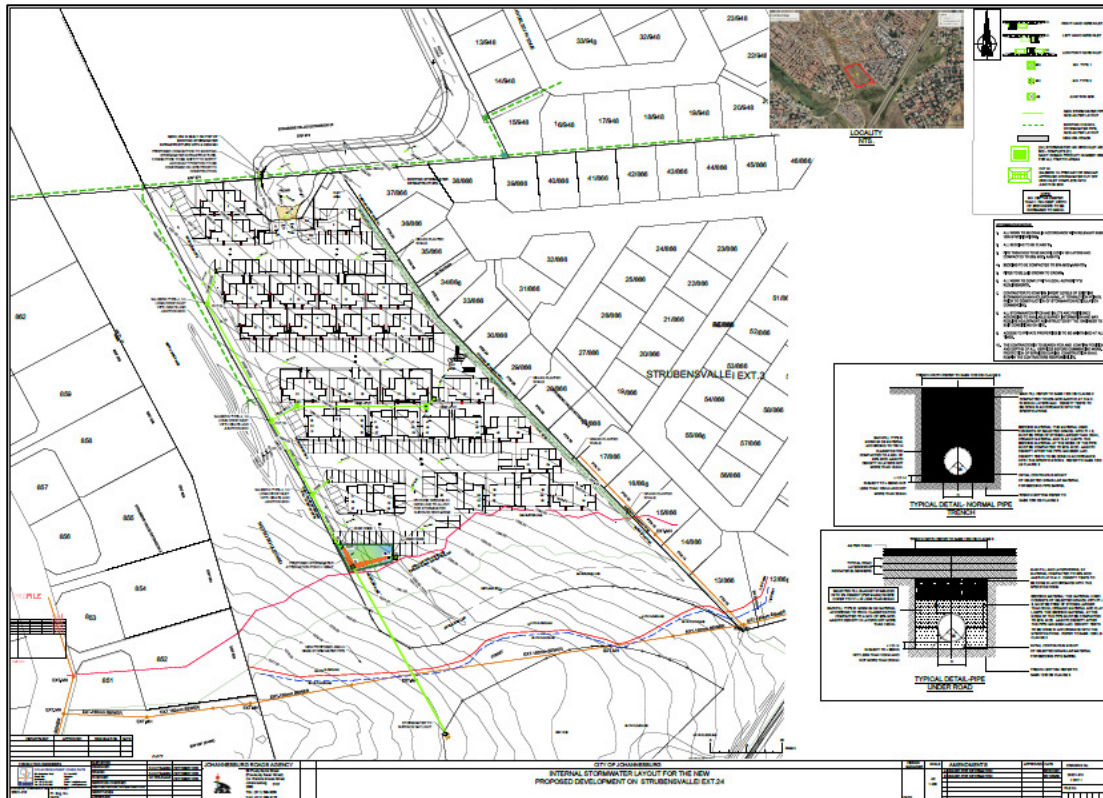
A Road and Stormwater Outline Scheme Report has been developed by C-Plan Development Consultants and is included in Appendix G of the Basic Assessment Report. In addition, a Stormwater Management Plan has also been compiled and is also included in Appendix G.

The objectives of stormwater management for this development inter alia include:

- To provide a stormwater drainage system for the conveyance of the stormwater runoff collected within the development and the protection of property from damage by the run-off from frequent storms,
- To prevent loss of life and reduce damage to property by the run-off from severe storms,
- To prevent land and watercourse erosion,
- To protect water resources from pollution,
- To prevent increased flood peaks in the existing major drainage system and further downstream from the development,
- To preserve natural watercourses and their ecosystems,
- To achieve the foregoing objectives at minimal total cost; and
- To reduce the peak 5-year and 25-year post development stormwater runoff to predevelopment peak stormwater runoff values.



In order to meet these objectives, an internal stormwater reticulation system will be put in place (as depicted in **Figure 7**).



**Figure 7: Internal Stormwater and Stormwater Attenuation**

This stormwater system includes underground stormwater conveyance system which will be designed to have adequate volume available to collect and convey the stormwater generated from a 1 in 25-yr storm event. As part of this, strategically placed stormwater structures consisting of cut of grid inlets will be placed at positions best suited to collect the generated stormwater within the development's boundary line. Stormwater will be conveyed via 160mm and 300mm pipes to direct stormwater to a 300mm and 375mm OGEE pipe which will run down the eastern side of the development and lead to a stormwater attenuation pond which will be approximately 231 m<sup>2</sup> in extent. In addition, additional flow from storm events more than 1 in 25 years will be accommodated within the internal roads therefore mitigating the risk of floods, damages and loss of life. Discharge into the pond will be through an energy dissipating structure for energy dissipating and erosion control.

From there, a 450mm OGEE pipe will discharge water under the future Metro boulevard into Erf 1348. The length of this pipe is approximately 79m. The conveyed water will be choked by means of the choke inlet structure situated within the attenuation pond. This will reduce the outflow and velocity of the post development storm event to equal or less than the pre-development flood event.

All materials, construction and testing of the stormwater reticulation will comply with Johannesburg Road Agency requirements, as well as the necessary SABS Standards.



#### 4. Roads and Access

A Road and Stormwater Outline Scheme Report has been developed by C-Plan Development Consultants and is included in Appendix G of the Basic Assessment Report. Further, a Traffic Impact Assessment has been undertaken by Mariteng Consulting Engineers and is also included in Appendix G. The latter found that the proposed development will generate 59 trips, during the weekday morning and weekday afternoon peak hours respectively. No external road upgrade required to accommodate the traffic demand.

The site access will be provided from the cul-de-sac intersecting with Fiddle Avenue. As part of the development, this new cul-de-sac and new section of surfaced road extending to the existing Fiddle Avenue road surface will be constructed to council standards and handed over to council upon completion and acceptance of the road infrastructure.

This road will include one inbound lane with a minimum width of 3.0m and one outbound lane with a minimum width 4.5m. A 2m paved sidewalk along the northern side of the cul-de-sac will also be provided.

Figure 8 shows this access road.

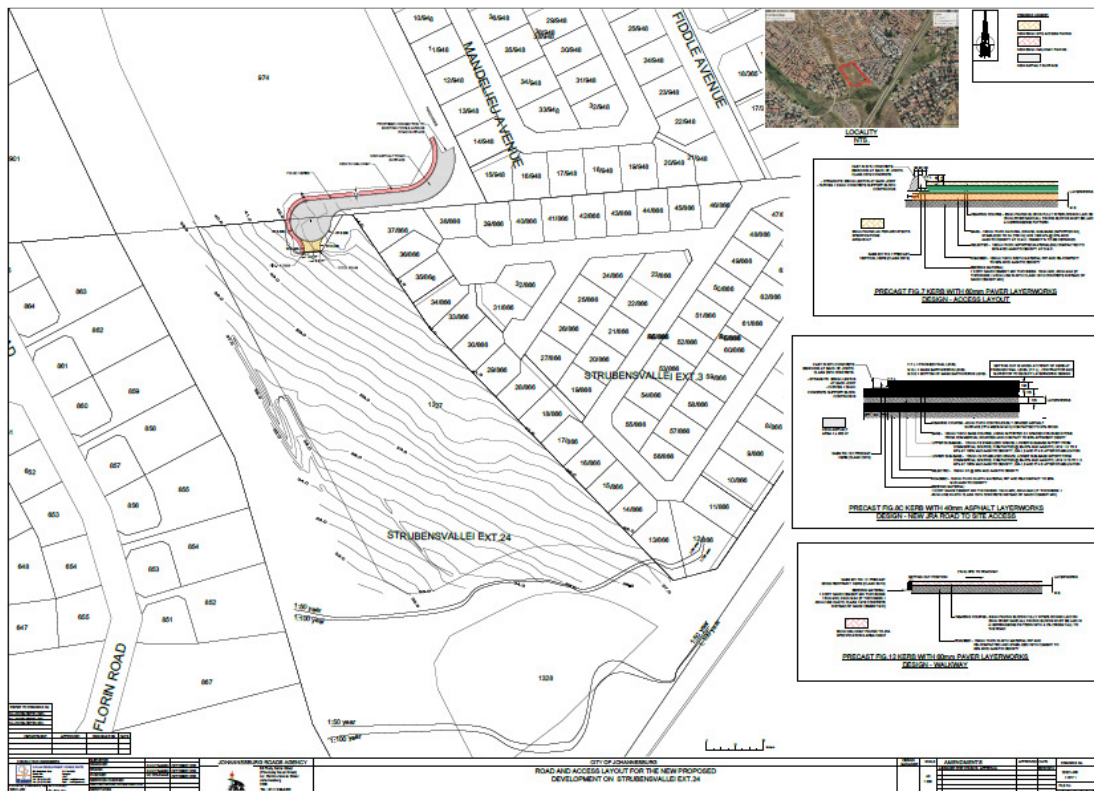
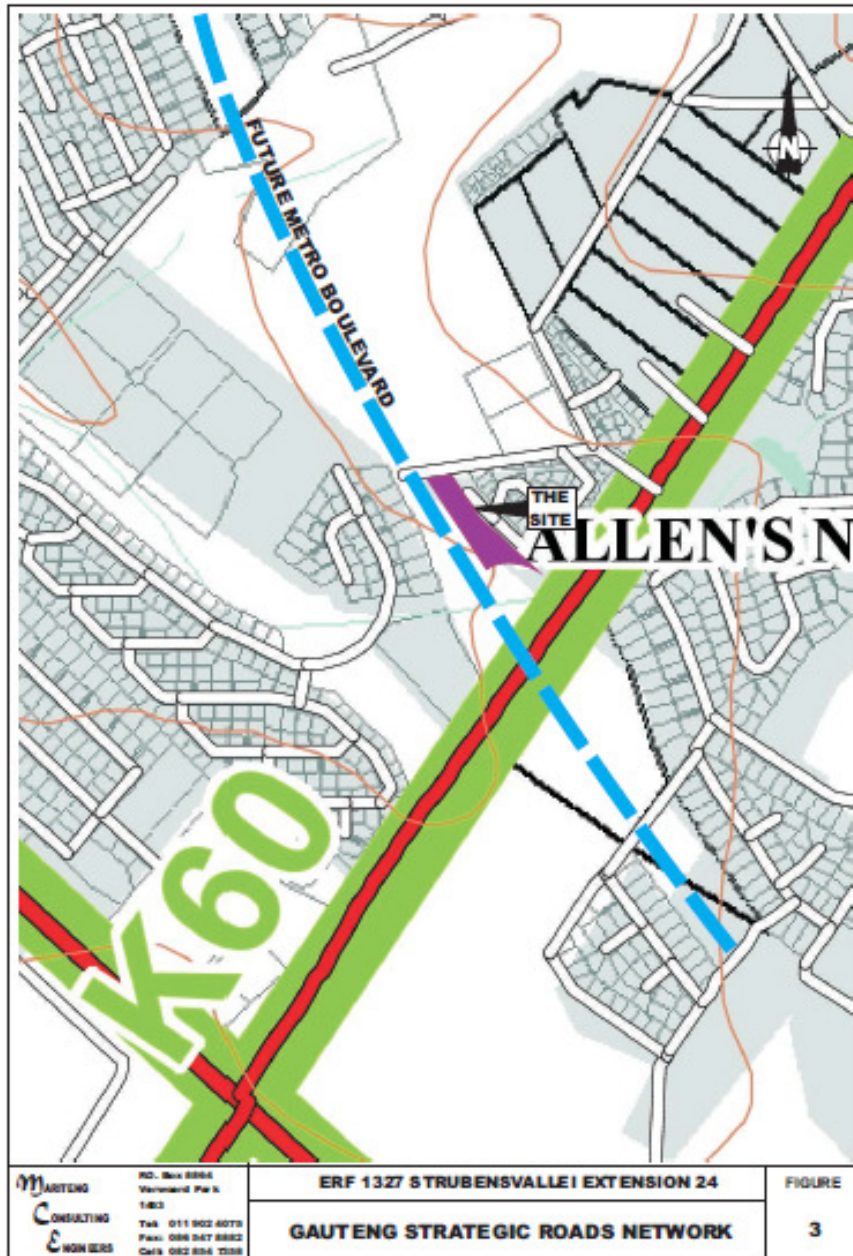


Figure 8: Access Road

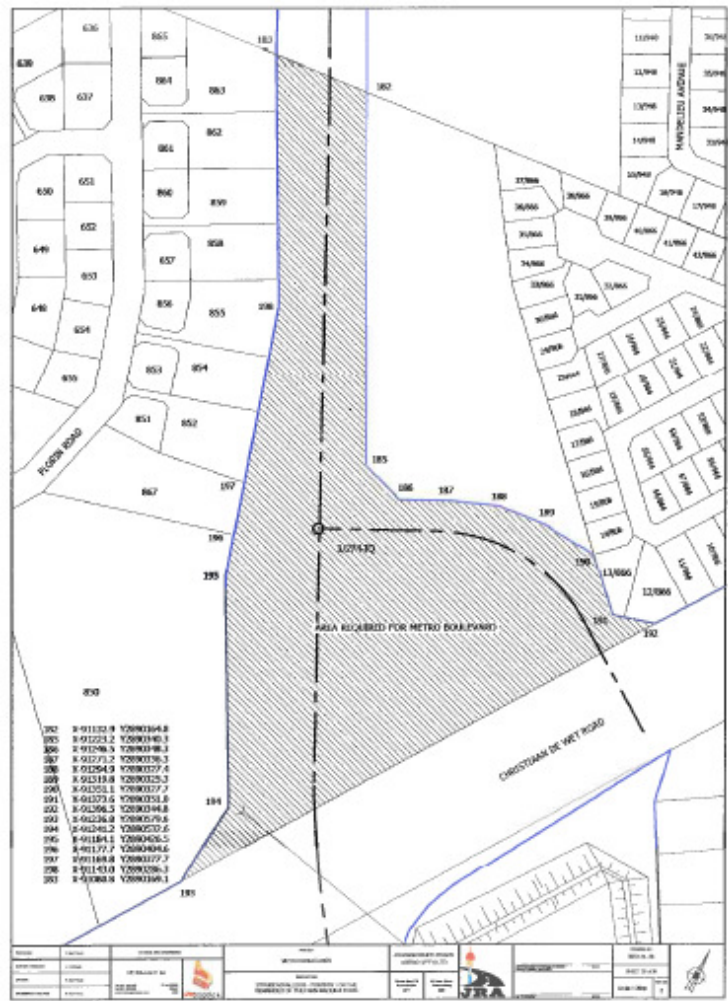
## 5. Future Road Developments and impacts on the Layout

Based on the provincial Gauteng Strategic Road Master Plan (refer to **Figure 9**) the applicant site is affected by the future Road K60 as well as Metro Boulevard. The Site Development Plan already makes provision for the future alignment of Road K60 as well as the future Metro Boulevard.



**Figure 9: Gauteng Strategic Roads Network**

The future Metro Boulevard, which is planned by the Johannesburg Roads Agency (JRA), in particular, has had an extensive impact on the study site and development layout. The road will be a 6-lane divided dual carriageway in a 40m road reserve (**Figure 10**) and will impact the existing wetland which occurs to the south of Erf 1327.



**Figure 10: Metro Boulevard in relation to the study site**

A Wetland Assessment has been undertaken and is included in Appendix G. Further, **Figure 11** below shows the design of the future Metro Boulevard together with the extent of the delineated wetland. The study found that wetland is highly transformed and impacted by historical and ongoing anthropogenic activities. The specialist also noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. In addition, a wetland buffer assessment was undertaken as part of the Wetland Assessment. This assessment procedure is structured as an eight-step process. The site assessment-based buffer tool was utilized to assess the buffer requirements for SV24-UCVB wetland. Due to the site and wetland conditions, the wetland PES and the ongoing anthropogenic impacts it was concluded that the required buffer for the wetland in terms of the proposed development and perceived future impacts would require the following buffering requirements:

- *Construction Phase Buffer Required* – 15m – [specific mitigation is required during this phase – main focus on siltation and erosion control]
- *Operational Phase Buffer Required* – 15m



As discussed in Section 1, the proposed layout incorporates the required 15m buffer. This has also been discussed and agreed with Ms. Jane Eagle of the City of Johannesburg: Environment and Infrastructure Department (EISD).

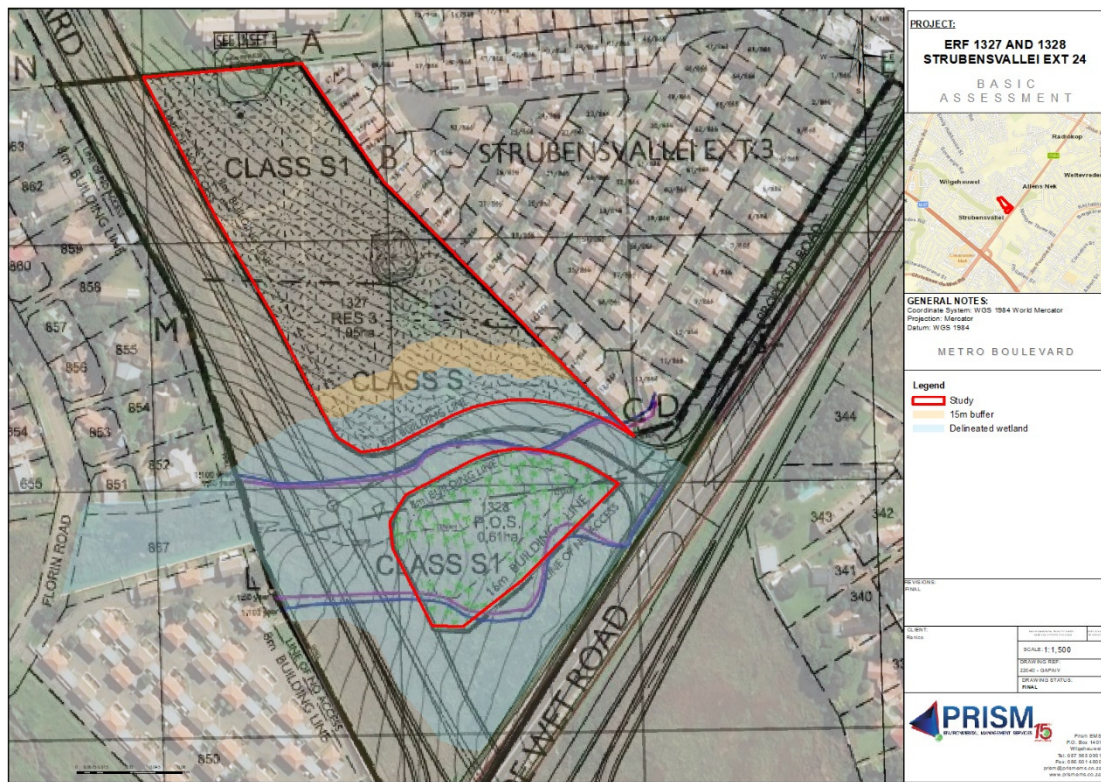


Figure 11: Metro Boulevard in relation to the wetland and wetland buffer

## 6. Alternatives

Two layout alternatives are being investigated as part of the Basic Assessment process and are as follows:

- Proposal
- Alternative 1.

The proposal involves of 72 “Residential 3” units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg.



## 7. Listed Activities

In terms of the EIA Regulations and Listed Activities, 2014, the activities that are triggered under the Listing Notices for this proposed development are provided in **Table 2**.

**Table 2.: Description of the Listed Activities.**

Listing Notice	Activity	Description of Listed Activity	Interpretation
GN 983 of 4 December 2014 (as amended)	12 (ii)(a)(c)	<p><i>The development of—</i></p> <p><i>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</i></p> <p><i>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</i></p> <p><i>where such development occurs—</i></p> <p><i>(a) within a watercourse;</i></p> <p><i>(b) in front of a development setback;</i></p> <p><i>or</i></p> <p><i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</i></p> <p><i>excluding—</i></p> <p><i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i></p> <p><i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i></p> <p><i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i></p> <p><i>(dd) where such development occurs within an urban area;</i></p> <p><i>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</i></p> <p><i>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</i></p>	<p>The proposed development occurs within 32m of a wetland. As such more than 100m<sup>2</sup> will be developed within 32m of a watercourse. This includes stormwater attenuation and a stormwater discharge pipeline.</p>

Listing Notice	Activity	Description of Listed Activity	Interpretation
	19 (i)	<p><i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from-</i></p> <p><i>(i) a watercourse;</i>  <i>(ii) the seashore; or</i>  <i>(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater</i></p> <p><i>but excluding where such infilling, depositing, dredging, excavation, removal or moving-</i></p> <p><i>(a) will occur behind a development setback;</i>  <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or</i>  <i>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.</i></p>	<p>The proposed development involves construction of a 450mm diameter OGEE pipeline to discharge stormwater into Erf 1328. It also involves the development of a 160mm diameter sewer pipeline to connect to the existing line. Both these pipelines occur within the wetland area and will result in the excavation of more than 10m<sup>2</sup> of material.</p>
	27	<p><i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</i></p> <p><i>(i) the undertaking of a linear activity; or</i>  <i>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>	<p>The proposed development is approximately 1.9 ha in extent. Whilst the site is degraded, more than 1 ha of indigenous vegetation will be cleared.</p>
GN R 985 4 December 2014	4 (c)(iv)(v)(vi)	<p><i>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</i></p> <p><i>(c) Gauteng</i></p> <p><i>i. A protected area identified in terms of NEMPAA, excluding conservancies;</i>  <i>ii. National Protected Area Expansion Strategy Focus Areas;</i>  <i>iii. Gauteng Protected Area Expansion Priority Areas;</i>  <i>iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;</i>  <i>v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</i>  <i>vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority;</i>  <i>vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas;</i></p>	<p>Internal roads will be put in place and are greater than 4m in width. These occur within a CBA: Important and Ecological Support Area (ESA) as well as an area identified as having a high agricultural potential. The site also falls within the historical extent of a Threatened Ecosystem (Egoli Granite Grassland).</p>



Listing Notice	Activity	Description of Listed Activity	Interpretation
		<p>viii. Important Bird and Biodiversity Area (IBA);</p> <p>ix. Sites or areas identified in terms of an international convention;</p> <p>x. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA;</p> <p>xi. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or</p> <p>xii. Sites zoned for conservation use or public open space or equivalent zoning</p>	
	12 (c)(i)(ii)	<p>The clearance of an area of 300m<sup>2</sup> or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>C. Gauteng</p> <p><u>i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of NEMBA or prior to the publication of such list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment, 2004.</u></p> <p><u>ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans;</u></p> <p>iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>	<p>Clearance of more than 300m<sup>2</sup> of vegetation occurring within an area identified as a CBA: Important and Ecological Support Area (ESA) as well the historical extent of a Threatened Ecosystem (Egoli Granite Grassland) will take place.</p>
	14 (c)(iv)(v)(vi)	<p>The development of-</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more</p> <p>where such development occurs-</p> <p>a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</p> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>c. Gauteng</p>	<p>The proposed development occurs within 32m of a wetland. As such more than 10m<sup>2</sup> will be developed within 32m of a watercourse. This includes stormwater attenuation and a stormwater discharge pipeline. The area is identified as a CBA: Important and Ecological Support Area (ESA) as well as within the historical extent of a Threatened Ecosystem (Egoli Granite Grassland).</p>



Listing Notice	Activity	Description of Listed Activity	Interpretation
		<p><i>i. A protected area identified in terms of NEMPAA, excluding conservancies;</i></p> <p><i>ii. National Protected Area Expansion Strategy Focus Areas;</i></p> <p><i>iii. Gauteng Protected Area Expansion Priority Areas;</i></p> <p><i>iv. <u>Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;</u></i></p> <p><i>v. <u>Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</u></i></p> <p><i>vi. <u>Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority;</u></i></p> <p><i>vii. Sites or areas identified in terms of an international convention;</i></p> <p><i>viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA;</i></p> <p><i>ix. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or</i></p> <p><i>x. Sites zoned for conservation use or public open space or equivalent zoning.</i></p>	

## 8. Need and Desirability

In terms of the need and desirability of the project, it should be noted that the proposed development will further the objectives of the Region C Regional Spatial Development Plan (RSDF) by supporting the development, infill and densification of Sub Area 7 within the Urban Development Boundary (UDB) (Intervention 1 of Development Objective 1). This includes the following guidelines:

- Support residential densities of between 40-60 dwelling units/ha to promote infill; and
- Development with the Urban Development Boundary”

The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.

The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvallei Extension 24 development does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.

Lastly, the development footprint of proposed development falls within Zone 1: Urban Development Boundary (UDB) of the Gauteng Provincial Environmental Management Framework (GPEMF). The intention of this zone is *“to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the COJ Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.”* The proposed development is therefore in line with the GPEMF. Whilst Erf 1328 falls within Zone 2 of the GPEMF, this erf will be zoned as Public Open Space and will not be developed.

Lastly the proposed development will provide numerous economic benefits. Firstly, during construction, there will be a direct CAPEX of R80 million. Secondly, 347 construction related employment opportunities will be created. During operation, 35 permanent positions will be created. This will also have several economic multiplier effects for the local economy.

## 9. Public Participation

### 9.1. Initial Public Participation

Initial Public Participation was undertaken in terms of the Environmental Impact Assessment (EIA) Regulations, 2014. In line with the new Permitting Regulations (GN 650 of 5 June 2020), a Public Participation Plan was compiled and submitted to GDARD on 13 May 2021. All public participation was undertaken in terms of the required safety measures and the approved Public Participation Plan. As part of initial notification and registration, the following has been undertaken:

- A potential I&AP database was compiled and included Adjacent Landowners, Ward Councillors, Authorities and Potential I&APs.
- A Background Information Document (BID) was compiled and included information on the proposed development, services and roads and included a map showing all these components.
- An advert was placed in the Star Newspaper on 21 May 2021 to notify potential Interested and Affected Parties (I&APs) of the project and to request that they register their interest in the project.
- Three site notices were placed around the site on 21 May 2021.
- Notification of adjacent landowners and other I&APs also took place on 21 May 2021 via email and hand delivery and the BID was provided as part of this.
- All registered I&APs were added to the I&AP database and all comments received added to the Comments and Responses Report.

## **10.2. Public Review of the Basic Assessment Report**

In addition to the above, notification of the review of the Basic Assessment Report (*this document*) has been undertaken as follows:

- Emails and/or Whatsapp messages have been sent to all the registered I&APs to notify them of the 30-day review period on 1 December 2021.
- Electronic copies (USB Flash drive) of the BAR were submitted to competent and commenting authorities including the Gauteng Department of Agriculture and Rural Development (GDARD), the City of Johannesburg (CoJ), and Department of Water and Sanitation (DHSWS) on 1 December 2021.
- A copy has also been uploaded to the South African Heritage Resources Information System (SAHRIS) to facilitate the review and comment by the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Agency of Gauteng (PHRA-G) on 1 December 2021.
- A 30-day public review has been provided between **1 December 2021 – 1 February 2022**.<sup>2</sup>

The BAR will be updated with comments received during this period and then submitted to GDARD for review and decision making. All registered I&APs will be notified of the decision.

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<sup>2</sup> Please note that this public review excludes the period between 15 December 2021 and 5 January 2022 as required by legislation. Further, an additional week has been provided to ensure that all I&APs have had an opportunity to review and comment.

## 10. Site Verification Assessment

In line with the recent Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 when applying for Environmental Authorisation (GN 320 of 20 March 2020), a Site Sensitivity Verification is required prior to commencing with the specialist assessment and aims to confirm the sensitivity of the site identified by the National Screening Tool. A copy of this Site Verification Assessment is included in **Appendix I3**.

Based on the findings of this verification assessment, the following specialist studies have been undertaken and are summarised in the section to follow:

- Baseline Ecological Habitat Assessment;
- Wetland Assessment; and
- Heritage Impact Assessment.

In addition to the above, due to the necessary Water Use Licence Application (WULA) and the DWS's requirements, a Hydropedological Assessment has also been undertaken and is included in the Basic Assessment Report.

## 11. Environmental Sensitivity

Copies of the Specialist Reports undertaken are included in **Annexure G**. In summary, the following was noted:

- Baseline Ecological Habitat Assessment
  - From a desktop perspective, the proposed development occurs within the Egoli Granite Grassland (Endangered) vegetation type.
  - The site was actively surveyed to determine the current status of the habitats on site. Two main habitat types were identified within the study site, namely:
    - Disturbed grassland; and
    - Wetland area.
  - The disturbed grassland include areas transformed due to historical activities (consisting of dumping and compact roads and pathways made by vehicles and humans) as well as sections of grassland with pioneer and alien invasive species.
  - The Wetland area occurs to the south of the development footprint and includes wetland and grassland features found on the riparian section. The area of the site includes species such as *Berkheya* sp., *Hypoxis* sp. and *Imperata* sp.
  - The habitats identified were identified as having a medium to low sensitivity.
  - Two SCC were identified on site, namely *Hypoxis hemerocallidea* and *Boophone disticha*. Whilst these species are classified as “Least Concern” in terms of Red Data List, GDARD has confirmed that they should be considered as “Orange List” species

in Gauteng due to provincial level pressures. Therefore, in order to mitigate impacts to these species, a Search and Rescue and Relocation Plan has been devised and included in Appendix E of the Baseline Ecological Assessment. Impacts to these species are expected to be low with the implementation of the necessary mitigation.

- Further, due to the ongoing anthropogenic activities in and around the study area, lack of habitat and breeding ground and presence of feral animals, the possibility for any of these species to be found on site is low.
- The impacts on flora and fauna are considered as low-medium.
- The study area is regarded as low-medium sensitivity. The study area is disturbed in terms of aspects such as human activities in the study site, presence of alien invasive species on site and minimum habitat for most fauna species. The site does not constitute Egoli Granite Grassland and no additional sensitivities were identified. It is recommended that no development or construction activities should occur within or within close proximity of the wetland area (15m buffer area).
- Wetland Assessment
  - The development site is not directly affected by the wetland, but a wetland occurs to the south of the development footprint.
  - In addition, the infrastructure installations and connections to the external services will impact on this wetland.
  - The Wetland specialist found that the Wetland identified is highly transformed and impacted by historical and ongoing anthropogenic activities.
  - The Present Ecological Status (PES) for the wetland scored in the mid-range for the Unchanneled Valley Bottom Wetland.
  - The Ecological Importance and Sensitivity (EIS) falls in the mid-range and has minimal functionality in respect of bio-diversity conservation.
  - The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. It will thus require some rehabilitation to enhance the ecological function of the system.
  - The wetland is not considered to be sensitive and of any major importance.
  - It must also be noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. The wetland (SV24) is a small scale wetland unit that interconnects to a larger wetland system to the west. The wetland (SV24) was also historically impacted by old farming activities and more recently by the construction of Christiaan DeWet Drive and associated stormwater infrastructure.
  - A wetland buffer assessment was undertaken as part of the Wetland Assessment. This assessment procedure is structured as an eight-step process. The site assessment-based buffer tool was utilized to assess the buffer requirements for SV24-UCVB wetland. Due to the site and wetland conditions, the wetland PES and the ongoing anthropogenic impacts it was concluded that the required buffer for the wetland in terms

of the proposed development and perceived future impacts would require the following buffering requirements:

- *Construction Phase Buffer Required* – 15m – [specific mitigation is required during this phase – main focus on siltation and erosion control]
- *Operational Phase Buffer Required* – 15m
- The specialist therefore concluded that the development **may go-ahead** if the required buffers are maintained and the resource drivers preserved by well-constructed stormwater infrastructure for the Township development. In respect of the construction phase, it is important to ensure that the required erosion protection measures linked to the intersecting sections be carefully designed and installed. It is further important to carefully design the storm water outlet structures to assist with dispersed flow release into the wetland. This should be designed to mimic the natural sheet flow into the wetland and avoid concentrated flow patterns into the wetland area.
- **Hydropedological Assessment**
  - A Hydropedological Assessment was undertaken and the following key findings were noted:
    - The site is hydropedologically complex, yet once the extent and location of various processes and expressions (flowpaths and storage mechanisms express, naturally) is understood, appropriate mitigative actions can be taken to divert the functionality to be in functionality with the imposed arbitrary development.
    - It is suggested that suitable infill for benching be afforded, primarily as the site holds the entire hillslope (via the plug) in balance. The invasion of the existing soil substrate will require high level hydropedological analysis (level 3&4 according to the Department of Water and Sanitation (DWS) Guidelines for Hydropedological Assessments), whereas the infilling of suitable materials will provide for the increased capacity of the site to mitigate future envisaged developments along the bottom of the site (i.e. the construction of the Metro Boulevard and intersection with Christiaan de Wet Road), simultaneously allowing for minimal destruction of the existing hillslope 'plug'.
    - Where shallow interflow is dominated by deep interflow, a separate/unique mitigation must be afforded. The implicit flowpath is of high flux and reduction value, relative to the surrounding soils.
    - The following are recommended:
      - Onsite consultation with hydropedologist prior and during services installation
      - Onsite consultation with hydropedologist prior and during cut and fill design (levels to be determined)
    - Bedrock was not encountered during the survey. (Geo-tech report also corroborates same). Soil rock interface was not encountered due to limitation of the use of TLB machinery. Hand auguring was not permissible due to the hardness of the material. It is thus recommended that a mechanical (drill type) investigation be conducted to confirm bedrock conditions.

- The topological backslope area should be further investigated in terms of the annual duration of saturation as factor for the reduction i.e. maturation of the soil (gleying).
- It should be attempted to enhance the current wetland function.
- Wetland drivers should be maintained as far as possible.
- Water quality preservation is key
- The specialist concluded that the project can be supported, should all the mitigation measures be implemented and monitored against to ensure compliance and protection of the natural resources.
- Heritage Impact Assessment
  - A Heritage Impact Assessment was undertaken and the following key findings were noted:
    - The study area is located in a densely developed residential area and surrounding developments and road construction as well as dumping activities would have impacted on surface evidence of heritage site if any ever occurred in the area.
    - The study area has been modified and altered through the extensive developments in the area and a visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance. Based on the SAHRA Paleontological map the area is of insignificant paleontological sensitivity and no further studies are required for this aspect.
    - No significant heritage resources will be affected by the development and therefore the impact of the project on heritage resources are low and the project can commence based on the implementation of the recommendations in this report and the approval of SAHRA.
    - Both the proposed and alternative layout is acceptable from a heritage point of view.
    - The specialist noted that a chance find procedure for the project must be implemented and as such, this has been included in the Environmental Management Programme (EMPr).

## 12. Impact Assessment

A detailed impact assessment has been undertaken and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (**Appendix I**). Most impacts have a low significance once mitigation measures were applied.

A detailed Environmental Management Programme (EMPr) has been compiled and is included in **Appendix H**. Mitigation measures recommended by the specialists as well as best practice measures have been included in this document which must be implemented.

### 13. Recommendation of the Practitioner

Based on the findings of the specialist studies and impact assessment and taking into account the successful implementation of the EMPr, it is felt that the **Proposal should be authorised.** The reasons for this opinion are as follows:

- The proposal includes a 15m buffer which is recommended by the wetland specialist and will assist with the required management of the development impacts and continuation and maintenance of the wetland drivers despite the planned Metro Boulevard.
- In addition, the proposal includes larger play areas which is preferred from a social perspective.
- Lastly, the proposal includes the necessary attenuation within the development footprint (Erf 1327) and is therefore outside the wetland or wetland buffer.

The following are recommended conditions for inclusion in the EA:

- The **proposed layout** should be implemented;
- A copy of the Final SDP must be submitted to GDARD once finalised as part of the townplanning process.
- An Environmental Control Officer (ECO) should be appointed to ensure compliance to the authorisation and EMPr. Weekly construction monitoring together with six-monthly full environmental audits is recommended;
- As required by the Baseline Ecological Habitat Assessment, the following should be undertaken:
  - Rescue and relocation of the *Boophone disticha* and *Hypoxis hemerocallidea*;
  - The wetland buffer area should be pegged out before any construction activities commence. See mitigation measures of the Wetland Report (Refer to Wetland Report, (22040 WPES\_Botha, D); and
  - Minimising the further loss of fauna and flora habitat by strictly keeping construction activities within the footprint of the proposed study area.
  - Only authorised activities will be allowed within the wetland and wetland buffer zone delineated by the wetland specialist (Refer to Wetland Report, (22040 WPES\_Botha, D). This area should be declared as a ‘no-go’ area during the pre-construction and construction phase.
  - All construction activities including laydown areas and service roads should strictly be kept within the study area;
  - A qualified environmental control officer (ECO) should be appointed during the pre-construction and construction phase. The ECO should during the pre-construction phase identify species that will be directly impacted during the construction phase and should therefore form part of the rescue and relocate project. This also includes species of fauna and flora to be found during the construction phase. The ECO should furthermore also be present during the pegging out of the wetland buffer and clearing of vegetation within close proximity of the wetland buffer;



- Areas on site that will be denuded during the construction phase should be vegetation with indigenous vegetation to prevent the loss of topsoil due to erosion activities such as wind and flooding; and
- An alien vegetation management plan for the site should be compiled and implemented throughout the construction phase.
- As required by the Hydropedological Assessment:
  - It is suggested that suitable infill for benching be afforded, primarily as the site holds the entire hillslope (via the plug) in balance. Infilling of suitable materials will provide for the increased capacity of the site to mitigate future envisaged developments along the bottom of the site (i.e. the construction of the Metro Boulevard and intersection with Christiaan de Wet Road), simultaneously allowing for minimal destruction of the existing hillslope 'plug'.
  - Where shallow interflow is dominated by deep interflow, a separate/unique mitigation must be afforded. The implicit flowpath is of high flux and reduction value, relative to the surrounding soils.
  - The following are recommended:
    - Onsite consultation with hydropedologist prior and during services installation
    - Onsite consultation with hydropedologist prior and during cut and fill design (levels to be determined)
  - Bedrock was not encountered during the survey. (Geo-tech report also corroborates same). Soil rock interface was not encountered due to limitation of the use of TLB machinery. Hand auguring was not permissible due to the hardness of the material. It is thus recommended that a mechanical (drill type) investigation be conducted to confirm bedrock conditions.
  - The topological backslope area should be further investigated in terms of the annual duration of saturation as factor for the reduction i.e. maturation of the soil (gleying).
  - It should be attempted to enhance the current wetland function.
    - Wetland drivers should be maintained as far as possible.
    - Water quality preservation is key
- As required by the Heritage Impact Assessment:
  - Implementation of a chance find procedure;
- As required by the Wetland Assessment:
  - On site storm water management must be implemented.
  - Ingress and Egress must be managed to minimise impacts in respect of compaction of the wetland soils.
  - Single entry and exit points must be established.
  - These areas must be scarified as part of the rehabilitation plan.
  - Stock piling must be located outside the delineated wetland and buffer boundaries.

- The proposed activities must be initiated and constructed in such a way to prevent the reduction of natural water flow into the wetland and downstream which, in essence, is the driving factor in terms of water provision.
- An approved stormwater management plan must be implemented.
- Velocity dissipation structures and sheet flow structures (such as reno mattresses) must also be installed to prevent water flowing through culverts to gain velocity and be released uncontrolled.
- Dispersed flow must be attained post formal structures.
- Sheet flow must be promoted to mimic natural flow patterns.
- Removal of alien and invasive plant species during the construction and operational phases.
- Stabilisation of gullies and drainage lines to prevent erosion.
- Implementation of topsoil management (stockpiling, topography shaping) and erosion control (berms, geotextiling, silt fences, hay bales and gabion structures).
- Re-vegetation with indigenous plant species.
- As required by the Stormwater Management Plan:
  - Sandbags and soil trenches and berms will be implemented during the construction phase at areas that may pose a safety risk due to increased stormwater flow.
  - These will be maintained during the construction phase and monitored by the site engineer on a weekly basis.
  - The attenuation pond mass earthworks will start immediately on site and will act as temporary rainwater storage areas during the construction phase all water will be directed to the pond.
- As required by the Traffic Impact Statement:
  - The study found that the proposed residential development will generate 59 trips, during the weekday morning and weekday afternoon peak hours respectively. Thus, no external road upgrade is required to accommodate the development trips.
  - The following site assess is required:
    - Access from a cul-de-sac which intersects with Fiddle Avenue (previously known as Sharon Road).
    - The minimum lane width should be 3.0m. In the event lanes are separated by a raised median island, then one lane should have a minimum width of 4.5m (to accommodate refuse and emergency vehicles).
    - A minimum throat length of 5m is proposed. Distance measured from the property boundary to the centre of the access control.
    - Access bellmouth on local authority road to have a minimum radius of 10.0m.
    - Provide a 2.0m paved sidewalk along the northern side of the cul-de-sac, serving the applicant site.
- As required by the Geotechnical Assessment:
  - Two site classes were identified:

- Site Class S1 (10-20mm consolidation settlement); and
- Site Class S (less than 10mm consolidation settlement).
- The following recommendations were provided for Zone S1:
  - Special foundation precautions to be put in place. Potential options for this include: Stiffened Strip Footings, Soil Raft or Compaction of Soils below Individual footings.
  - It is imperative that good site drainage is provided around individual structures and excess moisture should not be allowed to accumulate adjacent to foundations.
- The following recommendations were provided for Zone S:
  - Structures within this zone should be founded using normal strip footings.
  - Foundations should be on uniform material, and should footings straddle differing ground conditions, it is recommended that the whole structure be placed on a soil mattress.
- Good site drainage should be provided around individual structures and excess moisture should not be allowed to accumulate adjacent to foundations.

## **Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)**

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### Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

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### **DEPARTMENTAL DETAILS**

Gauteng Department of Agriculture and Rural Development  
Attention: Administrative Unit of the of the Environmental Affairs Branch  
P.O. Box 8769  
Johannesburg  
2000

Administrative Unit of the of the Environmental Affairs Branch  
Ground floor Diamond Building  
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377  
Department central telephone number: (011) 240 2500

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(For official use only)

<b>NEAS Reference Number:</b>						
<b>File Reference Number:</b>						
<b>Application Number:</b>						
<b>Date Received:</b>						

If this  
BAR  
has  
not  
been

submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Not Applicable.

Is a closure plan applicable for this application and has it been included in this report?

N/A

if not, state reasons for not including the closure plan.

Not Applicable

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

✓

This Basic Assessment Report is currently available for public and authority review.

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

✓

Please note that in terms of the Protection of Personal Information Act, 2013 (POPI), which came into effect on 1 July 2021, contact details are not included in the Interested and Affected Party (I&AP) Database.

If no, state reasons for not attaching the list.

Not Applicable

Have State Departments including the competent authority commented?

X

If no, why?

Not yet applicable.  
  
This document constitutes the Basic Assessment Report which will be subjected to 30 days' public participation.  
  
As such, comments have not yet received. All comments received during the public review period will be submitted as part of the final submission of the BAR to GDARD.

# SECTION A: ACTIVITY INFORMATION

## 1. Proposal or Development Description

**Project title (must be the same name as per application form):**

The Proposed Development of Erf 1327 And 1328, Strubensvallei Ext 24, City of Johannesburg, Gauteng

Select the appropriate box

The application is for an upgrade of an existing development

The application is for a new development

Other, specify

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	NO
✓	

If yes, describe the legislation and the Competent Authority administering such legislation

A Water Use Licence in terms of Section 21 (c) and (i) of the National Water Act, 1998 is required. An application will be submitted on the EWULAAS System.

An integrated process will be undertaken and a copy of the WULA Technical Report, Monitoring and Rehabilitation Plan is included in **Appendix F1** and is available for review and comment.

Further, comment from the South African Heritage Resources Agency (SAHRA) is required in terms of Section 38 of the National Heritage Resources Act however no other authorisations are required. A copy of the Basic Assessment Report and associated Heritage Impact Assessment will be uploaded to the South African Heritage Resources Information System (SAHRIS) to facilitate this.

If yes, have you applied for the authorisation(s)?

YES	NO
✓	
YES	NO
	✓

If yes, have you received approval(s)? (attach in appropriate appendix)

## 2. Applicable legislation, policies and/or guidelines

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
<i>National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).</i>	<i>National &amp; Provincial</i>	<i>27 November 1998</i>
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	National (DFFE) Provincial (GDARD)	4 December 1996
National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended	National (DFFE) Provincial (GDARD)	18 December 2014
Environmental Impact Assessment Regulations (GN R 982 of 4 December 2014) (as amended)	National (DFFE) Provincial (GDARD)	8 December 2014 (as amended on 7 April 2017)
Listing Notice 1 (GN R 983 of 4 December 2014) (as amended)	National (DFFE) Provincial (GDARD)	8 December 2014 (as amended on 7 April 2017)
Listing Notice 3 (GN 985 of 4 December 2014) (As amended)	National (DFFE) Provincial (GDARD)	8 December 2014 (as amended on 7 April 2017)
Need & Desirability Guideline (Notice 891 of 2014)	National (DFFE) Provincial (GDARD)	20 October 2014
Public Participation Process Guideline	National (DFFE)	10 October 2012

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
(GN R 807 of 10 October 2012)	Provincial (GDARD)	
National Heritage Resource Act (NHRA), 1999 (Act No. 25 of 1999)	South African Heritage Resources Agency (SAHRA)  Provincial Heritage Resources Agency – Gauteng (PHRA-G)	28 April 1999
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended] (NEMBA)	DFFE	1 September 2004
Alien and Invasive Species Regulations, 2014	DFFE	1 August 2014
Alien and Invasive Species Lists, 2016	DFFE	29 July 2016
Gauteng Spatial Development Framework (SDF) The Gauteng Spatial Development Framework 2030	GDARD	2011
Gauteng Provincial Environmental Management Framework (EMF) (GN 164 of 2 March 2018)	GDARD	2018
Adoption of the Gauteng Provincial Environmental Framework Standard and Exclusion of Associated Activities from the requirement to obtain environmental authorisation in terms of Section 24(2)(d) and 24(10)(a) Read in conjunction with Section 24(1)(d) of NEMA, 1998 for the implementation of the Gauteng Provincial Environmental Management Framework	GDARD	2018
Notice of the requirements to submit a report generated by the National Web Based Environmental Screening Tool in terms of Section 24(5)(h) of the National Environmental Management Act, 1998 and Regulation 18(1)(b)(v) of the EIA Regulations, 2014 (as amended) (GN 960 of 5 July 2019)	DFFE GDARD	2019
Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 when applying for Environmental Authorisation (GN 320 of 20 March 2020)	DFFE GDARD	2020
GDARD C-PLAN v3	GDARD	-

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy or guideline	Description of compliance
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	<p><i>Section 24 of the Constitution states that –</i>  <i>“Everyone has the right to –</i></p> <p><i>a) an environment that is not harmful to their health or well-being; and</i>  <i>b) have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) Prevent pollution and ecological degradation;</i>  <i>(ii) Promote conservation; and</i>  <i>(iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</i></p> <ul style="list-style-type: none"> <li>• <b>A Basic Assessment Process including an Impact Assessment has been undertaken to ensure that negative impacts on the environment can be mitigated satisfactorily</b></li> </ul>
National Environmental Management Act, 1998 (NEMA) (Act No. 107 of 1998), as amended	The NEMA is the umbrella framework for all environmental legislation primarily to assist with implementing the environmental rights of the Constitution. The NEMA provides

Legislation, policy or guideline	Description of compliance
	<p>fundamental principles required for environmental decision making and to achieve sustainable development. It also makes provision for duty of care to prevent, control and rehabilitate the effects of significant pollution and environmental degradation, and prosecute environmental crimes. These principles must be adhered to and taken into consideration during the impact assessment phase.</p> <p>Section 24D and 24(2) of the NEMA makes provision for the publication of list and associated regulations containing activities identified that may not commence without obtaining prior environmental authorisation from the competent authority.</p> <p>The Act also requires that no person may commence an activity listed or specified unless the competent authority has granted an environmental authorisation of that activity.</p> <ul style="list-style-type: none"> <li>• <b>A Basic Assessment Process including an Impact Assessment has been undertaken to ensure that negative impacts on the environment can be mitigated satisfactorily. This assessment is in line with the requirements of NEMA and the associated EIA Regulations.</b></li> <li>• <b>Further, other important aspects of NEMA such as sustainability principles such as the “Polluter Pays” and “the Precautionary Principle” have also been considered in the assessment of the impacts of the proposed development.</b></li> <li>• <b>The commencement of the activity will not take place unless authorised by the competent authority.</b></li> </ul>
<p>EIA Regulations (GN R 982 of 4 December 2014) (as amended)</p>	<p>The purpose of the EIA Regulations, 2014 is to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts.</p> <ul style="list-style-type: none"> <li>• <b>The Basic Assessment Process undertaken for the proposed development is in line with the requirements of the EIA Regulations, 2014 (as amended)</b></li> </ul>
<p>Listing Notice 1 (GN R 983 of 4 December 2014) (as amended)</p>	<p>In terms of Listing Notice 1, the proposed development triggers <b>Activity 12, 19 and 27.</b></p> <ul style="list-style-type: none"> <li>• <b>In line with the requirements of Listing Notice 1 of the EIA Regulations, 2014 (as amended), these activities have been included in the Application.</b></li> <li>• <b>A Basic Assessment Process in line with the requirements of the EIA Regulations, 2014 (as amended) is being undertaken.</b></li> </ul>
<p>Listing Notice 3 (GN 985 of 4 December 2014) (As amended)</p>	<p>In terms of Listing Notice 3, the proposed development triggers <b>Activity 4, 12 and 14</b></p> <ul style="list-style-type: none"> <li>• <b>In line with the requirements of Listing Notice 3 of the EIA Regulations, 2014 (as amended), these activities have been included in the Application.</b></li> <li>• <b>A Basic Assessment Process in line with the requirements of the EIA Regulations, 2014 (as amended) is being undertaken.</b></li> </ul>



Legislation, policy of guideline	Description of compliance
	<ul style="list-style-type: none"> <li>• Due to the potential sensitivities on site, a Baseline Ecological Habitat Assessment was undertaken and is included in Appendix G of this Report. The study found that aspects such as human activities in and around the study site, presence of alien invasive species on site, lack of habitat for most fauna species and the presence of feral animals in the area have impacted on the existing sensitivity of the site which <b>low to medium</b>. It is important to note that the area with a medium sensitivity falls out the development footprint as it relates to the wetland and wetland buffer.</li> <li>• In addition, a wetland assessment was undertaken and found that there is a wetland to the south of the development footprint (SV24_UCVB – Unchanneled Valley Bottom Wetland)/</li> <li>• This Wetland is highly transformed and impacted by historical and ongoing anthropogenic activities. The Present Ecological Status (PES) for the wetland scored in the mid-range for the Unchanneled Valley Bottom Wetland. The Ecological Importance and Sensitivity (EIS) falls in the mid-range and has minimal functionality in respect of bio-diversity conservation. The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. It will thus require some rehabilitation to enhance the ecological function of the system. The wetland is not considered to be sensitive and of any major importance.</li> <li>• It must also be noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. A 15m buffer was therefore recommended. <b>The specialist therefore noted that the development may go ahead</b></li> </ul>
Notice 891 of 2014	<p>The Department of Forestry, Fisheries and the Environment (DFFE) published a guideline on determining the need and desirability of a proposed development. This document provides information and guidance considering the need and desirability in terms of NEMA, the EIA Regulations, the NEM: AQA, and NEM: WA.</p> <p>It also aims to assist Environmental Assessment Practitioners (EAPs) to prepare a well-structured and complete application and reports in order, and to assist the competent authorities to ensure that need and desirability are given due consideration during every EIA application, to expedite and ensure well-informed decision-making.</p> <ul style="list-style-type: none"> <li>• <b>Section E, Part 9 of this report includes an assessment of the need and desirability of the proposed development which takes into account the Guidelines</b></li> </ul>
GN R 807 of 10 October 2012)	<p>The DFFE also published guidelines for public participation. However, these specifically relate to the EIA Regulations, 2010.</p> <ul style="list-style-type: none"> <li>• <b>Section C of this report provides information on the public participation process. Where applicable, the guideline assisted in ensuring all the necessary I&amp;APs were identified. However, as</b></li> </ul>

Legislation, policy of guideline	Description of compliance
	<p><b>mentioned, these guidelines specifically relate to the EIA Regulations, 2010.</b></p>
GN 650 of 5 June 2020	<p>Due to the current Covid-19 pandemic and the associated National State of Disaster, the Department published directions regarding the permitting process that must be followed in regards to Environmental Authorisation processes. In particular, public participation plans must be submitted to the Competent Authority and public participation must be undertaken in a way that limits risk but ensure fair consultation.</p> <ul style="list-style-type: none"> <li>• <b>A public participation plan (PP Plan) was submitted to GDARD 13 May 2021 but no response was provided. Public participation has been undertaken with the greatest attention to safety and in line with all Covid-19 Safety Requirements.</b></li> </ul>
National Heritage Resource Act (NHRA), 1999 (Act No. 25 of 1999)	<p>The National Heritage Resources Act (25 of 1999) was promulgated for the protection of National Heritage Resources and the empowerment of civil society to conserve their heritage Resources.</p> <p>In terms of Section 38 of this act, certain listed activities require authorisation from provincial agencies including “any development or other activity which will change the character of a site— (i) exceeding 5 000 m<sup>2</sup> in extent.”</p> <ul style="list-style-type: none"> <li>• <b>A Heritage Impact Assessment Report has been compiled and is included in Appendix G.</b></li> <li>• <b>No heritage resources were identified by the specialist study.</b></li> <li>• <b>A copy of the Basic Assessment Report including the Heritage Impact Assessment has been uploaded on the SAHRIS website for review and comment.</b></li> </ul>
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) [as amended] (NEMBA)	<p>NEMBA aims to provide for the management and conservation of South Africa’s biodiversity within the framework of the NEMA. The purpose of NEMBA is to protect ecosystems and the species within as well as the promoting of sustainable use of indigenous biodiversity.</p> <p>During any environmental authorisation process the following regulations are considered and researched if at any stage the following regulations are applicable:</p> <ul style="list-style-type: none"> <li>• <i>Alien and Invasive Species Regulations, 2014;</i></li> <li>• <i>Alien and Invasive Species List, 2016.</i></li> </ul>
Alien and Invasive Species Regulations, 2014	
Alien and Invasive Species Lists, 2016	<ul style="list-style-type: none"> <li>• <b>In terms of this environmental authorisation process, due to the disturbed nature of the site, measures to control alien and invasive species have been included in the Environmental Management Programme for the construction and operation of the proposed development.</b></li> <li>• <b>In addition, a Baseline Ecological Habitat Assessment has been undertaken as included in Appendix G. A number of alien and invasive species were identified and an Alien Invasive Species Management Plan will be compiled and implemented as required by the Ecological Specialist.</b></li> </ul>

Legislation, policy of guideline	Description of compliance
<p>Gauteng Spatial Development Framework (SDF) The Gauteng Spatial Development Framework 2030</p>	<p>The Gauteng Spatial Development Framework, 2011 was among others, compiled to specify a clear set of spatial objectives for municipalities to achieve to ensure realisation of the future provincial spatial infrastructure; and to enable and direct growth.</p> <p>The SDF aims to articulate the spatial objectives of the Gauteng Spatial Development Framework (SDF) The Gauteng Spatial Development Framework 2030 The Gauteng Spatial Development Framework, 2011 was among others, compiled to specify a clear set of spatial objectives for municipalities to achieve to ensure realisation of the future provincial spatial infrastructure; and to enable and direct growth. The SDF aims to articulate the spatial objectives of the Gauteng region to assist the alignment of neighbouring municipalities' spatial plans.</p> <ul style="list-style-type: none"> <li>• <b>The Gauteng SDF has been considered in Section B9 and E7 of this Basic Assessment Report to ensure that the development is in line with framework</b></li> </ul>
<p>Gauteng Provincial Environmental Management Framework (GPEMF)</p>	<p>The objective of the GPEMF is to guide sustainable land use management within the Gauteng Province. The GPEMF, inter alia, serve the following purposes:</p> <ul style="list-style-type: none"> <li>• To provide a strategic and overall framework for environmental management in Gauteng;</li> <li>• Align sustainable development initiatives with the environmental resources, developmental pressures, as well as the growth imperatives of Gauteng;</li> <li>• Determine geographical areas where certain activities can be excluded from an EIA process; and</li> <li>• Identify appropriate, inappropriate and conditionally compatible activities in various Environmental Management Zones in a manner that promotes proactive decision-making.</li> </ul> <ul style="list-style-type: none"> <li>• <b>As part of the Basic Assessment Process, the site was assessed in terms of the GPEMF, and it was determined that the development footprint of the site (Erf 1327) falls within Zone 1: Urban Development Zone.</b></li> <li>• <b>The intention with this zone is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development, in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.</b></li> <li>• <b>Whilst Erf 1328, falls also within Zone 2 of the GPEMF (Sensitive Zone within the UDZ), this area will not be developed and will be maintained as public open space.</b></li> </ul>
<p>Adoption of the Gauteng Provincial Environmental Framework Standard and Exclusion of Associated Activities from the requirement to obtain environmental authorisation in terms of Section 24(2)(d) and 24(10)(a) Read in conjunction with Section 24(1)(d) of NEMA, 1998 for the implementation of the Gauteng Provincial Environmental Management Framework (GN 164 of 2 March 2018)</p>	<p>The GPEMF Standard, 2018 provides for a number of activity exclusions in certain zones (for example, Zone 1 and Zone 5). The aim of this is streamline development in areas that are earmarked for development. In this way, the Standard promotes densification and infill.</p> <ul style="list-style-type: none"> <li>• <b>Whilst the development footprint of the site occurs within Zone 1, The proposed development occurs within, additional activities within Listing Notice 3 are triggered and a Registration in terms of the GPEMF is not applicable.</b></li> </ul>

Legislation, policy of guideline	Description of compliance
<p>Notice of the requirements to submit a report generated by the National Web Based Environmental Screening Tool in terms of Section 24(5)(h) of the National Environmental Management Act, 1998 and Regulation 18(1)(b)(v) of the EIA Regulations, 2014 (as amended (GN 960 of 5 July 2019)</p>	<p>GN960 of 5 July 2019 made it compulsory for the report generated on the DFFE online screening tool to be submitted as part of the Application for Environmental Authorisation. The aim of this is to ensure that a certain level of standardized information is provided to the Competent Authorities as well as I&amp;APs.</p> <ul style="list-style-type: none"> <li>• <b>As per the requirements of GN 960 of 5 July 2019, a report was generated on the National Screening tool and is submitted in Appendix I.</b></li> </ul>
<p>Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 when applying for Environmental Authorisation (GN 320 of 20 March 2020 and GN 1150 of 30 October 2020).</p>	<p>In terms of GN 320 of 20 March 2020, the site sensitivity verification can be undertaken by an environmental assessment practitioner (EAP) or a specialist and should utilize the following methodology:</p> <ul style="list-style-type: none"> <li>• A desk top analysis, using satellite imagery;</li> <li>• A preliminary on-site inspection; and</li> <li>• Any other available and relevant information.</li> </ul> <p>Further, the outcome of the site sensitivity verification must be recorded in a report that--</p> <ul style="list-style-type: none"> <li>• Confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;</li> <li>• Contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and</li> <li>• Is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations<sup>1</sup> (EIA Regulations).</li> <li>• <b>In line with these requirements, a Site Verification Report has been compiled and is included in Appendix I.</b></li> <li>• <b>Further, Specialist Assessments have been compiled in line with the requirements where applicable.</b></li> </ul>
<p>C-PLAN v3</p>	<p>Gauteng Conservation Plan (C-Plan) 3.3. is based on the systematic conservation protocol developed by Margules &amp; Pressey (2000) and is based on the principles of complementarity, efficiency, defensibility and flexibility, irreplaceability, retention, persistence and accountability.</p> <p>The main purpose of C-Plan 3.3 is to serve as the primary decision support tool for the biodiversity component of the EIA process, to inform protected area expansion and biodiversity stewardship programmes in the province and to serve as a basis for development of Bioregional Plans in municipalities within the province.</p> <p>According the Gauteng C-Plan, part of the site falls within a CBA: Important Area and Ecological Support Area (ESA):</p> <ul style="list-style-type: none"> <li>• <b>In order to determine the impacts of the proposed development. A Baseline Ecological Habitat</b></li> </ul>

Legislation, policy of guideline	Description of compliance
	<p>Assessment and Wetland Verification have been undertaken.</p> <ul style="list-style-type: none"> <li>▪ The Baseline Ecological Habitat Assessment found the site has a <b>low to medium sensitivity</b> due to human activities in and around the study site, the presence of alien invasive species on site, and the lack of habitat for most fauna species. The area with medium sensitivity is outside the development footprint as it relates to the wetland and 15m buffer.</li> <li>▪ In addition, a wetland assessment was undertaken and found that there is a wetland to the south of the development footprint (SV24_UCVB – Unchanneled Valley Bottom Wetland)/</li> <li>▪ This Wetland is highly transformed and impacted by historical and ongoing anthropogenic activities. The Present Ecological Status (PES) for the wetland scored in the mid-range for the Unchanneled Valley Bottom Wetland. The Ecological Importance and Sensitivity (EIS) falls in the mid-range and has minimal functionality in respect of biodiversity conservation. The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. It will thus require some rehabilitation to enhance the ecological function of the system. The wetland is not considered to be sensitive and of any major importance.</li> <li>▪ It must also be noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. A 15m buffer was therefore recommended. <b>The specialist therefore noted that the development may go-ahead</b></li> </ul>

### 3. Alternatives

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

**Note:** After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

As part of the development planning process for the proposed development, several technical assessments have been undertaken including the following:

- Outline Scheme Report;
- Traffic Impact Assessment;
- Geotechnical Assessment; and
- Stormwater Management Plan.

Discussions with the technical team as well as the wetland specialist were then undertaken to determine the requirements of the development and to ensure that the concept of sustainability was taken into account.

Further, due to the planned Metro Boulevard and its impact on the wetland, a number of discussions took place with the City of Johannesburg Environment and Infrastructure Service Development (EISD) where the layout and buffer requirements were discussed.

On this basis, two layout alternatives have been identified and are being investigated as part of the Basic Assessment process and are as follows:

- Proposal
- Alternative 1.

Provide a description of the alternatives considered

No.	Alternative type, <sup>3</sup>	Description
1	Proposal	The proposal involves of 72 “Residential 3” units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg ( <b>Figure 14</b> ).

<sup>3</sup> either alternative: site on property, properties, activity, design, technology, energy, operational or other (provide details of “other”)

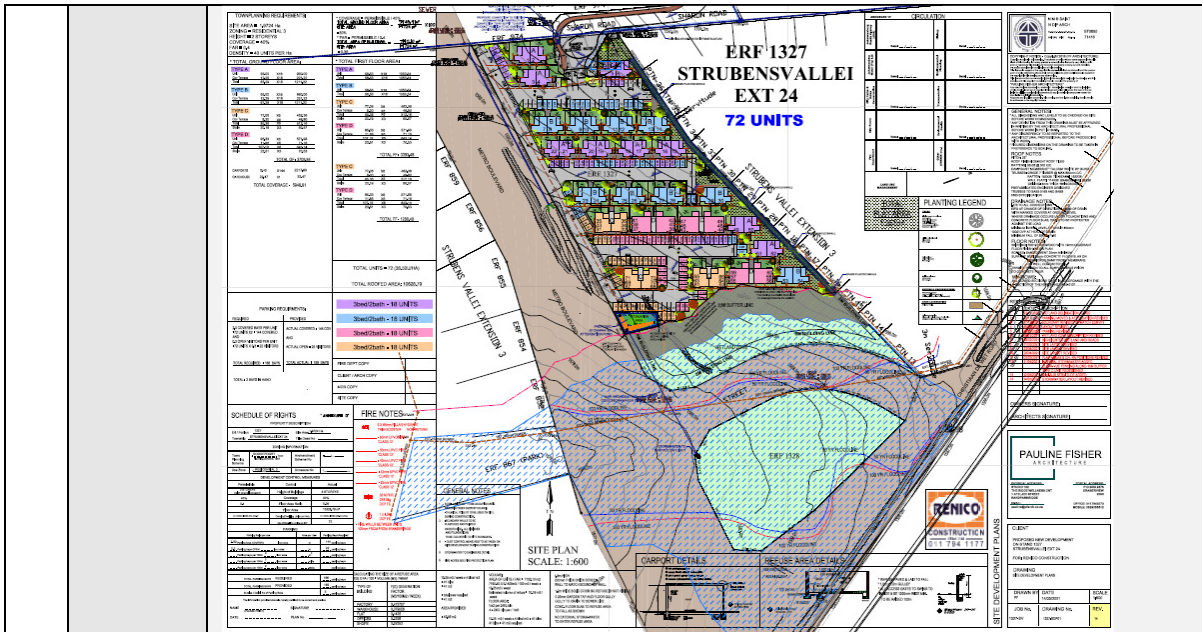


Figure 14: Proposal

2  
Alternative  
1

In contrast, Alternative 1 involves the development of 58 “Residential 3” units. Whilst attenuation is provided, it occurs within Erf 1328 (i.e. within the wetland). In addition, only one small play area is provided. Lastly, no wetland buffer is provided at all. Whilst the wetland to the south of the site will be destroyed by the development of Metro Boulevard, COJ has requested a 15m buffer and this layout does not meet this requirement. (Figure 15).

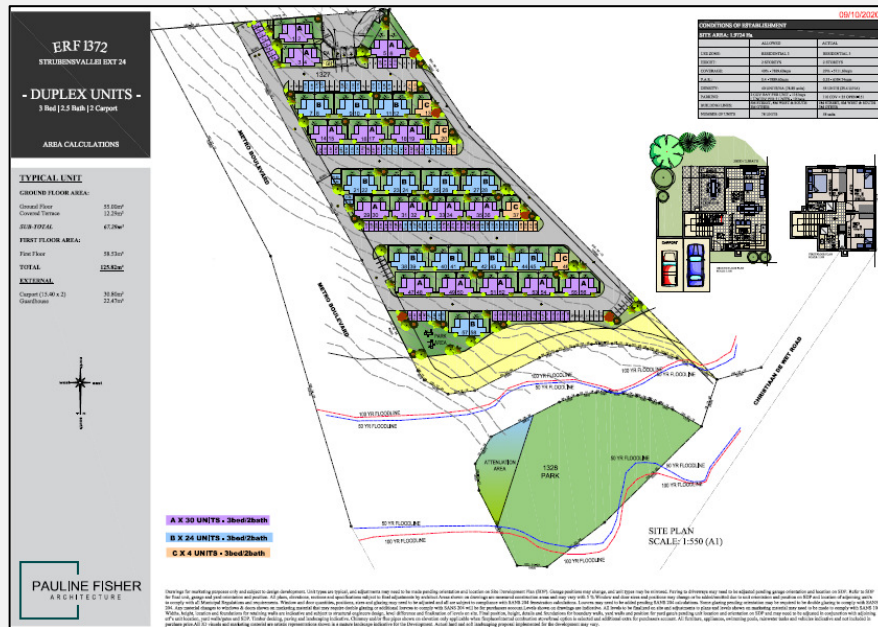


Figure 15: Alternative 1

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

Not Applicable.

## 4. Physical size of the activity

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

Proposed activity (**Total environmental (landscaping, parking, etc.) and the building footprint**)

**Size of the activity:**

2.12 ha

**Alternatives:**

Alternative 1 (if any)

2.12 ha

Alternative 2 (if any)

Ha/ m<sup>2</sup>

**\*Please note that the development footprint above includes the footprint of the new access cul de sac road as well as the stormwater pipeline and sewer connection.**

The details of each of these components is as follows:

Component	Hectares
Erf 1327	1.97 ha
Cul de sac access to Fiddle Road including water pipeline connection which occurs within Road reserve	0.14 ha
Stormwater pipeline (450mm diameter OGEE pipeline to discharge stormwater under the future Metro Boulevard (into Erf 1328))	0.0079 ha
Sewer Connection (160mm diameter to existing sewer pipeline)	0.0052 ha

or, for linear activities:

Proposed activity

**Length of the activity:**

**Alternatives:**

Alternative 1 (if any)

Alternative 2 (if any)

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

Proposed activity

**Size of the site/servitude:**

**Alternatives:**

Alternative 1 (if any)

Alternative 2 (if any)

Ha/m<sup>2</sup>

## 5. Site Access

### Proposal

Does ready access to the site exist, or is access directly from an existing road?

YES	NO ✓
110 m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

The site access will be provided from a new cul-de-sac intersecting with Fiddle Avenue (existing). As part of the development, this new cul-de-sac and new section of surfaced road extending to the existing Fiddle Avenue road surface will be constructed to council standards and handed over to council upon completion and acceptance of the road infrastructure.

This road will include one inbound lane with a minimum width of 3.0m and one outbound lane with a minimum width 4.5m. A 2m paved sidewalk along the northern side of the cul-de-sac will also be provided.

An overview of the planned access included in the Traffic Impact Assessment is provided in **Figure 16** below and is followed by the civil engineering drawing of the proposed access (**Figure 17**).



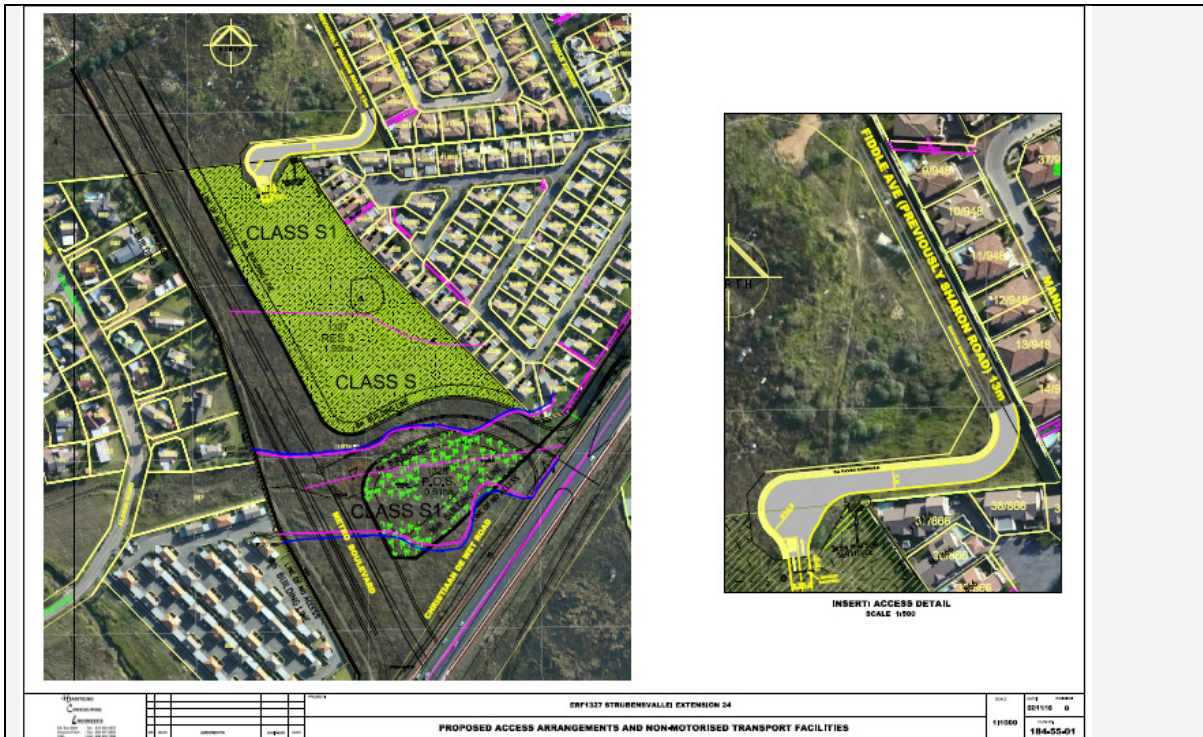


Figure 16: Access Arrangements (Mariteng Consulting Engineers)

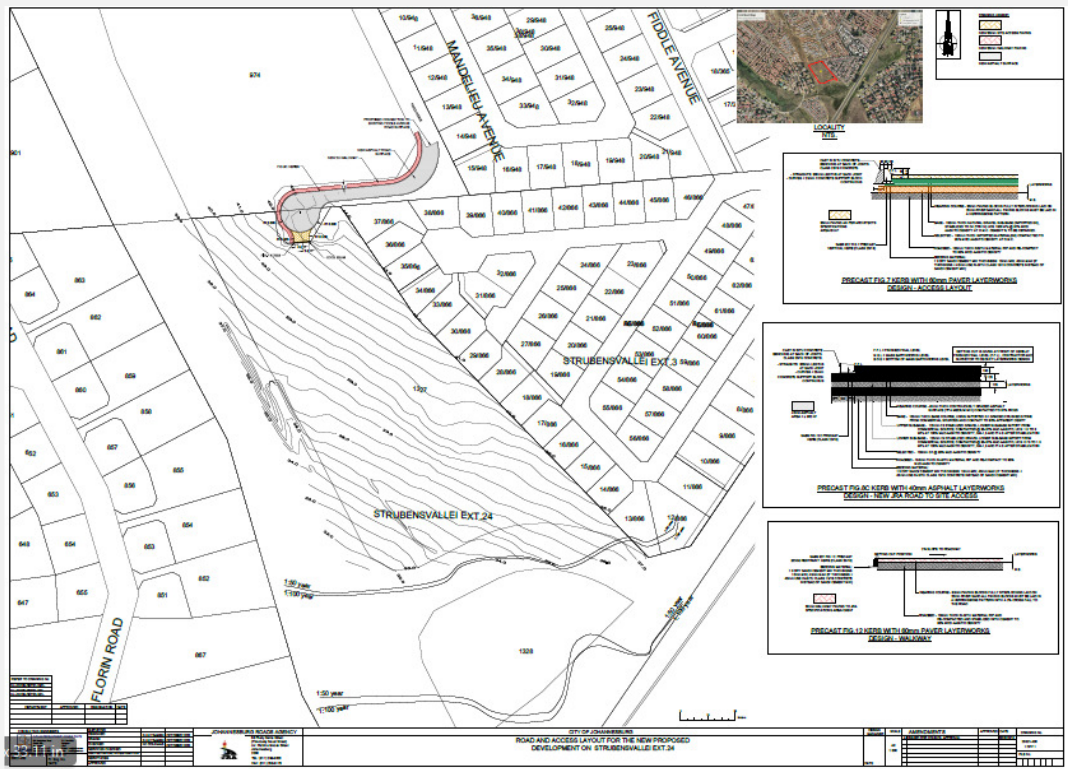


Figure 17: Design of Access Road (C Plan Development Consultants)

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 1**

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
	✓
110 m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

The Alternative will also require the development of the access as described above. Please refer to **Figure 16** and **Figure 17** above for more information.

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

#### Alternative 2

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

## PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated

N/A

Number of times

(only complete when applicable)

Layout alternatives have been considered and as such, duplication of Section A6-8 is not required.

## 6. Layout or Route Plan

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

Please refer to **Appendix A1** for a copy of the site plan for the Proposal and Alternative.

### FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and

➤ the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

Please refer to **Appendix A2** for a copy of the Locality Map. Please note that a number of maps have been provided at different scales to ensure that all information required is indicated. In addition, a number of sensitivity maps are provided in **Appendix A3**.

## 7. Site photographs

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

Please refer to **Appendix B** for a copy of the necessary site photographs.

## 8. Facility Illustration

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

Please refer to **Appendix C** for the facility illustrations. These include the following civil engineering layouts which include typical designs at various scales:

- Internal stormwater layout and designs
- External sewer layout and designs
- External water and designs
- Access road and designs
- Residential types

# SECTION B1: DESCRIPTION OF RECEIVING ENVIRONMENT

**Note:** Complete Section B for the proposal and alternative(s) (if necessary)

## Instructions for completion of Section B for linear activities

- 1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
- 2) Indicate on a plan(s) the different environments identified
- 3) Complete Section B for each of the above areas identified
- 4) Attach to this form in a chronological order
- 5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route  times

Not Applicable. The proposed development is not a linear activity. Although internal roads and a short access cul de sac will be put in place they are such that duplicated sections are not required.

## Instructions for completion of Section B for location/route alternatives

- 1) For each location/route alternative identified the entire Section B needs to be completed
- 2) Each alternative location/route needs to be clearly indicated at the top of the next page
- 3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives  times (complete only when appropriate)

## Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route  (complete only when appropriate for above)

Section B – Location/route Alternative No.  (complete only when appropriate for above)

Not Applicable. The alternatives assessed are layout alternatives and therefore occur on the same property.

## 1. Property Description

<b>Property description:</b> (Including Physical Address and Farm name, portion etc.)	The proposed development is located on Erf 1327 and Erf 1328 of Strubensvallei Ext 24  <b>Note:</b> Erf 1328 is zoned as public open space and thus will not be developed.
---	--

## 2. Activity Position

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

<b>Proposal</b>	<b>Latitude (S):</b>	<b>Longitude (E):</b>
	26° 7'5.59"S	27°54'43.29"E
<b>Alternative:</b>	<b>Latitude (S):</b>	<b>Longitude (E):</b>
	26° 7'5.59"S	27°54'43.29"E

the case of linear activities:

Latitude (S):                      Longitude (E):

- Starting point of the activity
- Middle point of the activity
- End point of the activity


**In the case of linear activities:**

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S): Longitude (E):


**In the case of linear activities:**

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S): Longitude (E):


For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL*	T	0	I	Q	0	3	9	2	0	0	0	0	1	3	2	7	0	0	0	0
	T	0	I	Q	0	3	9	2	0	0	0	0	1	3	2	7	0	0	0	0
ALTERNATIVE	T	0	I	Q	0	3	9	2	0	0	0	0	1	3	2	7	0	0	0	0
	T	0	I	Q	0	3	9	2	0	0	0	0	1	3	2	7	0	0	0	0

Please note that some components also occur within the existing road reserves for Fiddle avenue and Metro Boulevard and thus no property information is available for these components.

### 3. Gradient of the Site

Indicate the general gradient of the site.

Flat	1:50 – 1:20 ✓	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	------------------	-------------	-------------	--------------	-------------	------------------

### 4. Location in Landscape

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain ✓	Undulating plain/low hills	River front
-----------	---------	--------------------------	--------	------------	----------------------------	-------------

### 5. Groundwater, Soil and Geological Stability of the Site

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)

Dolomite, sinkhole or doline areas

Seasonally wet soils (often close to water bodies)

Unstable rocky slopes or steep slopes with loose soil

Dispersive soils (soils that dissolve in water)

Soils with high clay content (clay fraction more than 40%)

Any other unstable soil or geological feature

YES ✓	NO
YES	NO ✓
YES ✓	NO
YES	NO ✓
YES	NO ✓
YES	NO ✓
YES	NO ✓

An area sensitive to erosion

YES ✓	NO
----------	----

Africa Exposed undertook a Geotechnical Investigation in 2006 as part of the township application process. The findings of that study have been incorporated into the approved layout plan and Conditions of Establishment for the township (dated 16 September 2011).

Two site classes were identified:

- Site Class S1 (10-20mm consolidation settlement); and
- Site Class S (less than 10mm consolidation settlement).

Please refer to the approved layout plan showing these two zones (Figure 18).

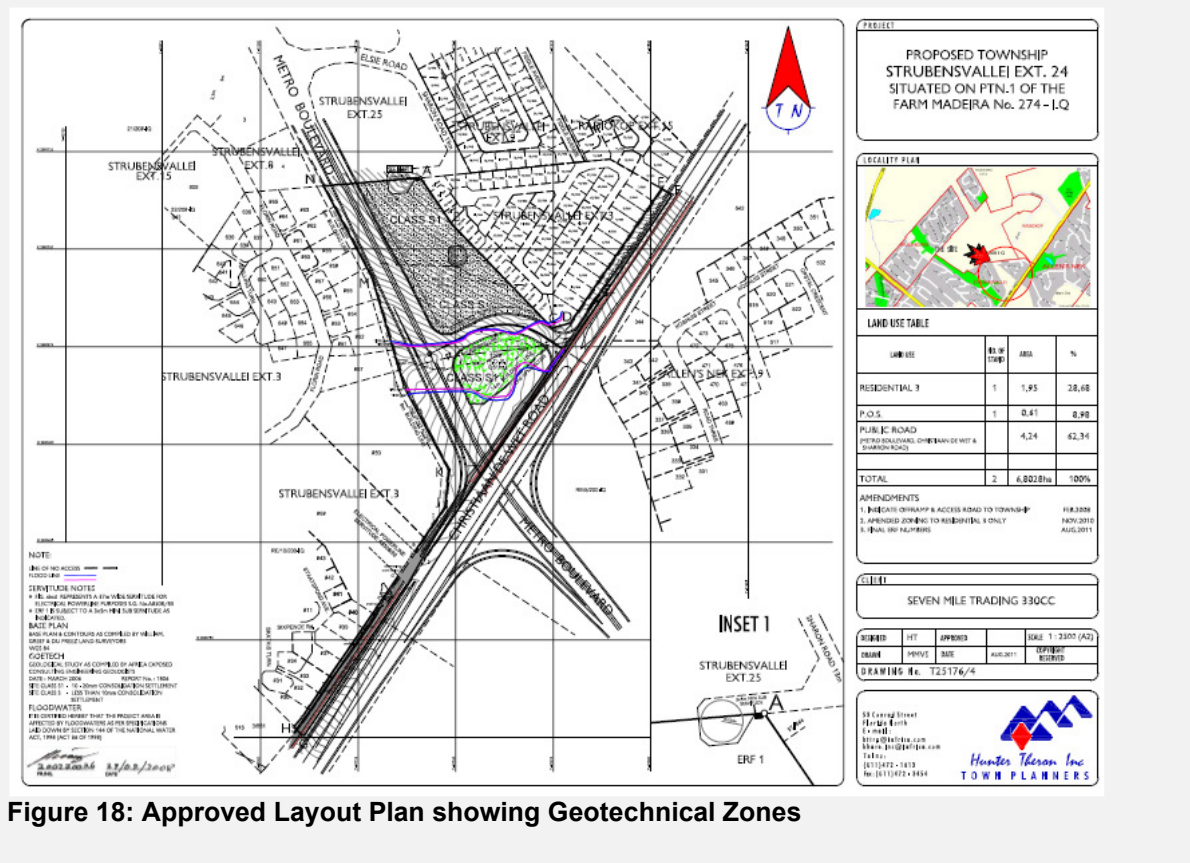


Figure 18: Approved Layout Plan showing Geotechnical Zones

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

YES	NO ✓
-----	---------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):  Longitude (E):

c) are any caves located within a 300m radius of the site(s)

YES	NO ✓
-----	---------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):  Longitude (E):

d) are any sinkholes located within a 300m radius of the site(s)

YES	NO ✓
-----	---------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):  Longitude (E):



If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

## 6. Agriculture

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

YES* ✓	NO
-----------	----

**Please note:** The Department may request specialist input/studies in respect of the above.

\*Please note that according to the Gauteng Agricultural Potential Atlas IV, the agricultural potential of the site is high. However, information on the National Screening Tool shows that the site has a **medium sensitivity**.

Further, the site has not been used for agriculture since at least 2007 (earliest imagery date available). Lastly, the site is completely surrounded by residential area and is less than 2 ha in extent. It occurs in an area earmarked for residential development in terms of the Region C SDF as well as within the consolidation zone of the City of Johannesburg SDF 2040 and thus is not an area where agricultural use would be applicable.

Lastly, the area in GAPA IV that is marked as high includes the wetland as well as Christiaan De Wet Drive which suggests that the GIS in this area may not be accurate.

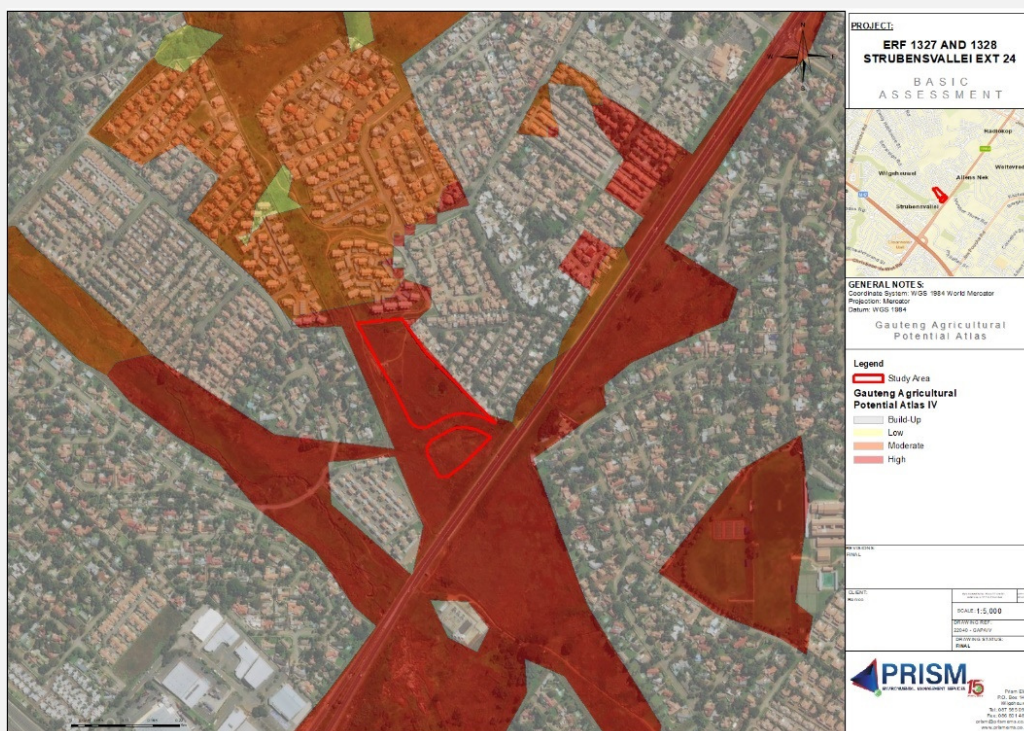


Figure 19: Agricultural Potential in terms of GAPA IV

## 7. Groundcover

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	<b>Natural veld with scattered aliens</b> % = <b>38%</b>	<b>Natural veld with heavy alien infestation</b> % = <b>60%</b>	Veld dominated by alien species % =0	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	<b>Bare soil</b> % = <b>2%</b>

**Please note:** The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

YES	NO ✓
-----	---------

If YES, specify and explain:

**Please note:**

No red list endangered or rare flora or fauna species were identified by the Ecological Baseline Assessment Study. However, several *Hypoxis hemerocallidea* and a single *Boophone disticha* were identified on site. These are identified as least concern on the Red Data list (Williams et al., 2016) but due to medicinal use are known to be decreasing and are thus species of conservation concern in Gauteng. These species will be relocated within the footprint of the development. Specific mitigation measures regarding this are included in the Environmental Management Programme (EMPr) as well as the Species Search, Rescue and Relocation Plan included in the Ecological Baseline Assessment.

A copy of the study is provided in **Appendix G**.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

YES	NO ✓
-----	---------

If YES, specify and explain:

Not Applicable.

Are there any special or sensitive habitats or other natural features present on the site?

YES	NO ✓
-----	---------

If YES, specify and explain:

A Baseline Ecological Habitat Assessment and Wetland Assessment were undertaken by Prism EMS and are included in **Appendix G**. A summary of each study is provided below:

- Baseline Ecological Habitat Assessment
  - From a desktop perspective, the proposed development occurs within the Egoli Granite Grassland (Endangered) vegetation type.
  - The site was actively surveyed to determine the current status of the habitats on site. Two main habitat types were identified within the study site, namely:
    - Disturbed grassland; and
    - Wetland area.
  - The disturbed grassland include areas transformed due to historical activities (consisting of dumping and compact roads and pathways made by vehicles and humans) as well as sections of grassland with pioneer and alien invasive species.
  - The Wetland area occurs to the south of the development footprint and includes wetland and grassland features found on the riparian section. The area of the site includes species such as *Berkheya* sp., *Hypoxis* sp. and *Imperata* sp.
  - The habitats identified were identified as having a medium to low sensitivity.
  - Two SCC were identified on site, namely *Hypoxis hemerocallidea* and *Boophone disticha*. Whilst these species are classified as "Least Concern" in terms of Red Data List, GDARD has confirmed that they should be considered as "Orange List" species in Gauteng due to provincial level pressures. Therefore, in order to mitigate impacts to these species, a Search and Rescue and Relocation Plan has been devised and included in Appendix E of the Baseline Ecological Assessment. Impacts to these species are expected to be low with the implementation of the necessary mitigation.
  - Further, due to the ongoing anthropogenic activities in and around the study area, lack of habitat and breeding ground and presence of feral animals, the possibility for any of these species to be found on site is low.



- The impacts on flora and fauna are considered as low-medium.
- The study area is regarded as low to medium sensitivity. The study area is disturbed in terms of aspects such as human activities in the study site, presence of alien invasive species on site and minimum habitat for most fauna species. The site does not constitute Egoli Granite Grassland and no additional sensitivities were identified. It is recommended that no development or construction activities should occur within or within close proximity of the wetland area.
- Wetland Assessment
  - The development site is not directly affected by the wetland, but a wetland occurs to the south of the development footprint.
  - In addition, the infrastructure installations and connections to the external services will impact on this wetland.
  - The Wetland specialist found that the Wetland identified is highly transformed and impacted by historical and ongoing anthropogenic activities.
  - The Present Ecological Status (PES) for the wetland scored in the mid-range for the Unchanneled Valley Bottom Wetland.
  - The Ecological Importance and Sensitivity (EIS) falls in the mid-range and has minimal functionality in respect of bio-diversity conservation.
  - The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. It will thus require some rehabilitation to enhance the ecological function of the system.
  - The wetland is not considered to be sensitive and of any major importance.
  - It must also be noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. The wetland (SV24) is a small scale wetland unit that interconnects to a larger wetland system to the west. The wetland (SV24) was also historically impacted by old farming activities and more recently by the construction of Christiaan DeWet Drive and associated stormwater infrastructure.
  - In addition, a wetland buffer assessment was undertaken as part of the Wetland Assessment. This assessment procedure is structured as an eight-step process. The site assessment-based buffer tool was utilized to assess the buffer requirements for SV24-UCVB wetland. Due to the site and wetland conditions, the wetland PES and the ongoing anthropogenic impacts it was concluded that the required buffer for the wetland in terms of the proposed development and perceived future impacts would require the following buffering requirements:
    - *Construction Phase Buffer Required* – 15m – [specific mitigation is required during this phase – main focus on siltation and erosion control]
    - *Operational Phase Buffer Required* – 15m
  - As such a 15m buffer on the current wetland be accommodated to buffer the development from the wetland. The buffer will suffice in the required management of the development impacts and continuation and maintenance of the wetland drivers. This conservation buffer should be utilised as the control area and will be adequate to assist with management and mitigation during the construction and operation phase.
  - The specialist therefore concluded that the development **may go-ahead** if the required buffers are maintained and the resource drivers preserved by well-constructed stormwater infrastructure for the Township development. In respect of the construction phase, it is important to ensure that the required erosion protection measures linked to the intersecting sections be carefully designed and installed. It is further important to carefully design the storm water outlet structures to assist with dispersed flow release into the wetland. This should be designed to mimic the natural sheet flow into the wetland and avoid concentrated flow patterns into the wetland area.

**Therefore, in summary, the site is no longer considered to be representative of Egoli Granite Grassland. Further, a wetland occurs to the south of the site but the wetland and its 15m buffer have been taken into account and are excluded from the development footprint. The development site is therefore not considered to be sensitive.**

Was a specialist consulted to assist with completing this section

YES ✓	NO
----------	----

If yes complete specialist details

Name of the specialist:

Qualification(s) of the specialist:

De Wet Botha	A.E. Van Wyk
M.A. Env. Man.)(PHED) Member of the International Association for Impact Assessors (IAIAsa)(1653) Member of the Gauteng Wetland Forum Member of the South African Wetland Society SACNASP Registered Scientist – Pr.Sci.Nat. (119979) EAPASA – Registered EAP (1209)	BSc. (Biological Sciences)

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--

Postal code:

Telephone:

E-mail:

087 985 0951	Cell: 083 232 3042
<a href="mailto:dewet@prismems.co.za">dewet@prismems.co.za</a>	Fax: 086 601 4800

Are any further specialist studies recommended by the specialist?

YES	NO ✓
-----	---------

If YES, specify:

Not applicable.

If YES, is such a report(s) attached?

N/A

If YES list the specialist reports attached below

Please refer to **Appendix G1** for a copy of the Ecological Habitat Status Assessment.

Signature of specialist:



De Wet Botha      AE. Van Wyk

Date:

November 2021

**Please note;** If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

## 8. Land Use Character of Surrounding Area

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

<b>1. Vacant land</b>	<b>2. River, stream, wetland</b>	3. Nature conservation area	<b>4. Public open space</b>	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	<b>9. Medium to high density residential</b>	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial <sup>AN</sup>	17. Hospitality facility	18. Church	<b>19. Education facilities</b>	20. Sport facilities
21. Golf course/polo fields	22. Airport <sup>N</sup>	23. Train station or shunting yard <sup>N</sup>	24. Railway line <sup>N</sup>	<b>25. Major road (4 lanes or more)<sup>N</sup></b>
26. Sewage treatment plant <sup>A</sup>	27. Landfill or waste treatment site <sup>A</sup>	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam <sup>A</sup>	34. Small Holdings	
Other land uses (describe):	<b>35. Electrical Substation</b> <b>36. Road</b>			

**NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks**

NORTH						
	1, 9, 36	1, 2, 9, 36	2, 9, 36	2, 9, 35	9, 36	
	1, 2, 9, 36	1, 9, 36	9, 36	9, 36	9, 25, 36	
WEST	1, 2, 9, 36	1, 2, 9, 36		1, 2, 9, 17, 25, 36	1, 9, 19, 36	EAST
	2, 9, 36	1, 2, 9, 25, 36	1, 2, 9, 25	1, 2, 9, 25, 36	9, 36	
	9, 25, 36	1, 9, 36	1, 35, 36	1, 9	1, 9, 3	
SOUTH						

= Site

**Note:** More than one (1) Land-use may be indicated in a block

**Please note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached

YES ✓	NO
----------	----

If yes indicate the type of reports below

The following environmental specialist studies have been undertaken:

- Baseline Ecological Habitat Assessment;
- Wetland Assessment;
- Hydropedological Assessment; and
- Heritage Impact Assessment

In addition, the following technical studies have been undertaken:

- Traffic Impact Assessment;
- Outline Scheme Report;
- Geotechnical Assessment; and
- Stormwater Management Plan.

These studies are all included in **Appendix G**.

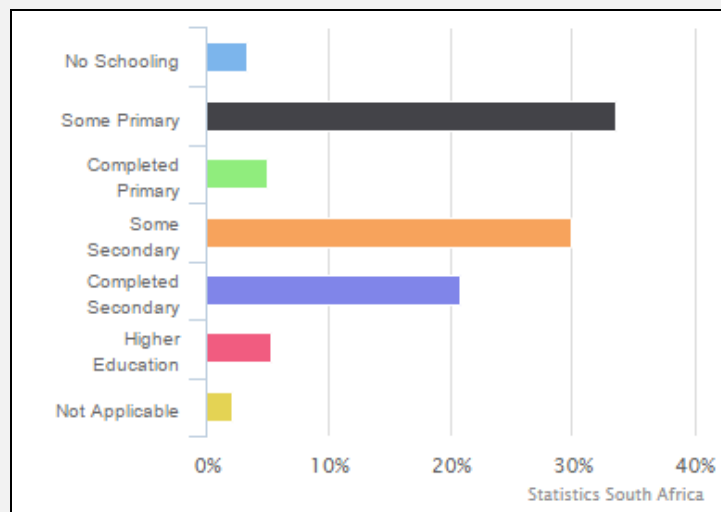
## 9. Socio-Economic Context

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The proposed development occurs within the City of Johannesburg in Gauteng. A summary of the socio-economic environment for the City of Johannesburg (obtain from StatsSA) is included below.

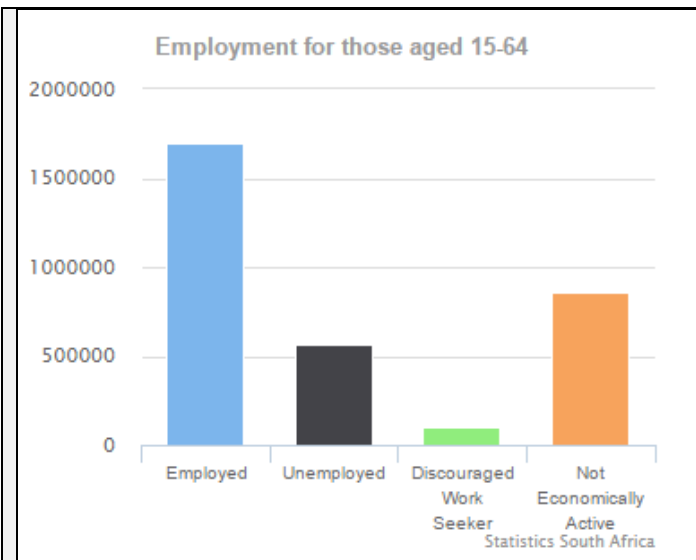
The City of Johannesburg Local Municipality is situated in Gauteng province and covers an area of 1 645km<sup>2</sup>. The City is the provincial capital of Gauteng, the wealthiest province in South Africa. According to Census 2011 information, the area has a total population of 4,4 million of which 76,4% are black African, 12,3% are white people, 5,6% are coloured people, and 4,9% are Indian/Asian.

**Figure 20** below shows that the majority of people in the area have either some primary school education (33.6%) or secondary education (30%). Only 20.8% of the population has completed secondary school and an even smaller percentage (5.3%) have higher education (Stats SA, 2017).



**Figure 20: Highest Education Level (All Ages) (Stats SA, 2017).**

Approximately 72.7% of the population are at a working age (15-64). Of those, approximately 52.6% (1 696 520 people) are employed (**Figure 21**). The unemployment rate for the area is 25%. Of the 1 228 666 economically active youth (15-35 years) in the area, 31,5% are unemployed. In terms of living conditions, there is 1 434 856 households in the municipality with an average household size of 2,8 persons per household. 64,7% of households have access to piped water, 26,9% have water in their yard and only 1,4% of households do not have access piped water (Stats SA, 2017).



**Figure 21: Employment for those aged 15-64 (Stats SA, 2017)**

In addition to the above, the following planning documents and frameworks apply to the area and are discussed in more detail in the following subsections:

**Regional Spatial Development Framework (RSDF), 2011: Administrative Region A:**

The RSDF represents the prevailing spatial planning policy within the City of Johannesburg and is adopted in terms of the Municipal Systems Act, 2000 (Act No. 32 of 2000) as an integral component of the City’s Integrated Development Plan (IDP).

Region C is one of seven administrative regions that make up the City of Johannesburg. The proposed development occurs Sub Area 7. In terms of the Intervention 1 of Development Objective 1 development in this area should support development, infill and densification within the Urban Development Boundary (UDB). This includes the following guidelines:

- Support residential densities of between 40-60 dwelling units/ha to promote infill; and
- Development with the Urban Development Boundary”

The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.

**City of Johannesburg Spatial Development Framework 2040**

The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvallei Extension 24 development, does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.

**Gauteng Provincial Environmental Management Framework (GPEMF)**

Lastly, the development footprint of proposed development falls within Zone 1: Urban Development Boundary (UDB) of the Gauteng Provincial Environmental Management Framework (GPEMF). The intention of this zone is “to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the COJ Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.” The proposed development is therefore in line with the GPEMF. Whilst Erf 1328 falls within Zone 2 of the GPEMF, this erf will be zoned as Public Open Space and will not be developed.

**Socio-Economic Motivation**

Lastly from a socio-economic perspective, the proposed development will benefit the area as it will result in approximately R95 million investment in the area which will have numerous economic multiplier effects that will

benefit the region positively. The proposed development will also result in 200 construction related (temporary) jobs and 31 operational (permanent) jobs.

## 10. Cultural/Historical Features

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site-
  - (i) exceeding 5 000 m2 in extent; or
  - (ii) involving three or more existing erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m2 in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?

YES	NO ✓
-----	---------

If YES, explain:

The study area has been modified and altered through the extensive developments in the area and a visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

A Heritage Impact Assessment was undertaken and the following key findings were noted:

- The study area is located in a densely developed residential area and surrounding developments and road construction as well as dumping activities would have impacted on surface evidence of heritage site if any ever occurred in the area.
- The study area has been modified and altered through the extensive developments in the area and a visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance.
- Based on the SAHRA Paleontological map the area is of insignificant paleontological sensitivity and no further studies are required for this aspect.
- No significant heritage resources will be affected by the development and therefore the impact of the project on heritage resources are low and the project can commence based on the implementation of the recommendations in this report and the approval of SAHRA.
- Both the proposed and alternative layout is acceptable from a heritage point of view.
- The specialist noted that a chance find procedure for the project must be implemented and as such, this has been included in the Environmental Management Programme (EMPr).

Will any building or structure older than 60 years be affected in any way?

YES	NO ✓
YES	NO ✓

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please attached the comments from SAHRA in the appropriate Appendix

A copy of this BAR and the Heritage Impact Assessment has been uploaded to SAHRIS to allow SAHRA and PHRA-G an opportunity to provide comment in terms of section 38 of NRHA.

## SECTION C: PUBLIC PARTICIPATION (SECTION 41)

The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

**Initial Public Participation**

Initial Public Participation was undertaken in terms of the Environmental Impact Assessment (EIA) Regulations, 2014.

In line with the new Permitting Regulations (GN 650 of 5 June 2020), a Public Participation Plan was compiled and submitted to GDARD on 13 May 2021. All public participation was undertaken in terms of the required safety measures and the approved Public Participation Plan.

As part of initial notification and registration, the following has been undertaken:

- A potential I&AP database was compiled and included Adjacent Landowners, Ward Councillors, Authorities and Potential I&APs.
- A Background Information Document (BID) was compiled and included information on the proposed development, services and roads and included a map showing all these components.
- An advert was placed in the Star Newspaper on 21 May 2021 to notify potential Interested and Affected Parties (I&APs) of the project and to request that they register their interest in the project.
- Three site notices were placed around the site on 21 May 2021.
- Notification of adjacent landowners and other I&APs also took place on 21 May 2021 via email and hand delivery and the BID was provided as part of this.
- All registered I&APs were added to the I&AP database and all comments received added to the Comments and Responses Report.

**Public Review of the Basic Assessment Report**

In addition to the above, notification of the review of the Basic Assessment Report (this document) has been undertaken as follows:

- Emails and/or Whatsapp messages have been sent to all the registered I&APs to notify them of the 30-day review period on **1 December 2021**.
- Hard copies and/or electronic copies (USB Flash drive) of the BAR were submitted to competent and commenting authorities including the Gauteng Department of Agriculture and Rural Development (GDARD), the City of Johannesburg (CoJ), and Department of Human Settlements, Water and Sanitation (DHSWS) on **1 December 2021**.
- A copy has also been uploaded to the South African Heritage Resources Information System (SAHRIS) to facilitate the review and comment by the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Agency of Gauteng (PHRA-G) on **13 July 2021**.
- A 30-day public review has been provided between **1 December 2021 – 1 February 2022**.

The BAR will be updated with comments received during this period and then submitted to GDARD for review and decision making. All registered I&APs will be notified of the decision.

**1. Local Authority Participation**

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?

YES ✓	NO
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If yes, has any comments been received from the local authority?

YES ✓	NO
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If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

During the initial registration period, an email was received from the City of Johannesburg which requested that the City be registered as an Interested and Affected Party (I&AP). It was also requested that a copy of the Basic Assessment Report and associated appendices be made available.

The request has been duly noted and the City registered as an I&AP and the comment added to the Comments and Responses Report. Further, as part of the public review of the Basic Assessment Report, an electronic copy has been provided to the City to facilitate their review and comment.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

A copy of this Basic Assessment Report has been submitted to the City of Johannesburg Metropolitan Municipality for comment as part of the public participation process. All comments received from the Municipality will be included in the final submission of the Basic Assessment Report. No comments have yet been received on the report itself. However, as described above, the City has registered their interest and have been provided a copy of this report as part of the 30 day public review.

## 2. Consultation with Other Stakeholders

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES	NO
✓	

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

### Initial Notification

A 30-day registration period was provided to allow I&APs an opportunity to register their interest in the project from 21 May 2021 to 22 June 2021. A number of requests for registration/comments were made. As required by the POPI Act, 2013, no personal details are noted in this report or in the associated Appendices:

- I&AP 1 – *Request more information*
- I&AP 2 (City of Johannesburg) - *Request registration and copy of BAR*
- I&AP 3 (Lakelands complex) – *Request electronic copy of the BID and more information on services.*
- I&AP 4 (Morgans Creek Complex) – *Requested more information on number of units, services and traffic as well as electronic copy of BID.*
- I&AP 5 (Lead 2 Business) – *Request registration*
- I&AP 6 (Morgans Creek) – *request registration and concerns regarding traffic and safety and security.*

All requests for registration/comments are provided in **Appendix E4**. Further, all comments received during the initial registration periods have been added to the Comments and Responses Report in **Appendix E6**.

If "NO" briefly explain why no comments have been received

Not applicable.

## 4. General Public Participation Requirements

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

## 5. Appendices for Public Participation

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Please see Appendix E1 for proof of the site notices that were placed on 21 May 2021.

Appendix 2 – Written notices issued as required in terms of the regulations

Please see Appendix E2 for proof of the emails, smses and hand delivery of BIDs which took place as part of the initial registration period between 21 May 2021 and 22 June 2021.

Appendix 3 – Proof of newspaper advertisements

Please see Appendix E3 for proof of newspaper notice which was placed in the Star Newspaper on 21 May 2021.

Appendix 4 – Communications to and from interested and affected parties

Comments received during the initial registration period are included in Appendix E4.

Appendix 5 – Minutes of any public and/or stakeholder meetings

As part of the initial development of the site development plan, a pre-application meeting took place with City of Johannesburg EISD. No minutes were taken as part of this discussion however should any additional consultations be held as part of the formal Basic Assessment Process, these will be included in the final submission of the Basic Assessment Report to GDARD.

Appendix 6 - Comments and Responses Report

Please see Appendix E6 for a copy of the Comments and Responses Report.

*Please note that the requirements for the Protection of Personal Information Act, 2013 came into effect on 1 July 2021. Therefore, personal details are provided in the Comments and Responses Report to protect this information*

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Not yet applicable. The Basic Assessment Report is currently available for public review. Should any comments be received, they will be included in the final submission of the Basic Assessment Report to GDARD.

Appendix 8 –Comments from I&APs on amendments to the BA Report

Not applicable.

Appendix 9 – Copy of the register of I&APs

Please see Appendix E9 for a copy of the I&AP register.

*Please note that the requirements for the Protection of Personal Information Act, 2013 came into effect on 1 July 2021. Therefore, no contact details are provided in the I&AP database to protect this information*



# SECTION D: RESOURCE USE AND PROCESS DETAILS

**Note:** Section D is to be completed for the proposal and alternative(s) (if necessary)

## Instructions for completion of Section D for alternatives

- 1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
- 4) Each alternative needs to be clearly indicated in the box below
- 5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives  times (complete only when appropriate)

Section D Alternative No.  (complete only when appropriate for above)

Not Applicable. Layout alternatives have been assessed as part of the Basic Assessment Report and do not affect resource use.

## 1. Waste, Effluent, and Emission Management

### Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
Approximately 100m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

The building rubble and solid construction waste (such as sand, gravel, concrete and waste material) that cannot be used for filling and rehabilitation and other litter and waste generated during the construction phase will be removed from site and be disposed of safely and responsibly at a licensed landfill site.

Where will the construction solid waste be disposed of (describe)?

Waste will be removed by a Certified Waste Management Company and be disposed of at a registered landfill site

Will the activity produce solid waste during its operational phase?

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
45m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

The City of Johannesburg Metropolitan Municipalities waste collectors under contract by the municipality will collect the domestic waste on a weekly basis. Recycling will be encouraged whereby paper and other recyclable materials will be stored separately and collected on a weekly basis.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
--	--------------------------------

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Not applicable.

**Please note:** A townplanning application has been submitted to the City of Johannesburg and the layout plan approved in 2011. Conditions of establishment were subsequently provided on **16 September 2011** and the township proclaimed on **11 March 2014**. The Municipality is thus aware of the proposed requirements in terms of waste and effluent etc.

**Note:** If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
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If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO
	✓

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

All materials that can be recycled will be separated from the general waste and disposed of at recycling facilities. Spoil material which could be used for landscaping purposes will be extracted and kept neatly intact and in a controlled manner as to prevent erosion by the wind and water

**Liquid effluent (other than domestic sewage)**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO
	✓

If yes, what estimated quantity will be produced per month?

Not Applicable	
----------------	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?

YES	NO
	✓

Will the activity produce any effluent that will be treated and/or disposed of on site?

Yes	NO
	✓

If yes, what estimated quantity will be produced per month?

Not applicable.	
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If yes describe the nature of the effluent and how it will be disposed.

Not applicable.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO
	✓

If yes, provide the particulars of the facility:

Facility name: Not applicable. Only domestic sewage will be generated at the Residential Development.  
Contact person: Connection to existing bulk sewer will be made and thus domestic sewage will be treated at a municipal treatment works.  
Postal address:  
Postal code:  
Telephone:  
E-mail:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Not Applicable.

**Liquid effluent (domestic sewage)**

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

YES	NO
✓	

If yes, what estimated quantity will be produced per month?

85.41 kl per day therefore 2562.3 KL per month.	
---	--

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	NO
✓	

**Please note:** A townplanning application has been submitted to the City of Johannesburg and the layout plan approved in 2011. Conditions of establishment were subsequently provided on **16 September 2011** and the township proclaimed on **11 March 2014**. The Municipality is therefore aware of the development and its service requirements.

Further, a Water and Sanitation Outline Scheme Report has been compiled and submitted to the Johannesburg Water who have subsequently provided comments on 23 November 2020 where they support the development. In particular they note:

*"The proposed development is situated in the Driefontein Sewer Drainage Basis. The existing sewer infrastructure comprising a 150mm diameter pipe on the southern side of the proposed development and the rest downstream has enough capacity to accommodate flows to generated from the proposed 78 units to be constructed on site. The proposed development is therefore supported."*

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO
	✓

If yes describe how it will be treated and disposed off.

Not applicable.

### Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO
	✓
YES	NO
	✓

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

Please note that dust will be generated during the construction phase and will be regulated under the National Dust Control Regulations, 2013 (GN R 827). The dustfall rate (D) may not exceed 600 mg/m<sup>2</sup>/day. Dust suppression measures will be stipulated in the EMPr.

## 2. Water Use

Indicate the source(s) of water that will be used for the activity

Municipal ✓	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Not applicable

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?

YES	NO*
	✓

If yes, list the permits required

\*A Water Use Licence Application is required for activities within 500m of a wetland as well as for stormwater attenuation and release and connection to the existing sewer line. However, no water will be abstracted from groundwater or surface water as part of the development. No permit is therefore required in this regard.

If yes, have you applied for the water use permit(s)?

N/A
N/A

If yes, have you received approval(s)? (attached in appropriate appendix)

**Please note:** A Water Use Licence Application is required for activities within 500m of a wetland as well as for stormwater attenuation and release and connection to the existing sewer line and is currently in progress. An integrated process is being undertaken and as such, a copy of the WULA Technical Report is provided in **Appendix F** and is available for review and comment. This WULA does not relate to abstraction from groundwater or surface water.

It should also be noted that a townplanning application has been submitted to the City of Johannesburg and the layout plan approved in 2011. Conditions of establishment were subsequently provided on **16 September 2011** and the township proclaimed on **11 March 2014**. The Municipality is therefore aware of the development and its service requirements.

Further, a Water and Sanitation Outline Scheme Report has been compiled and submitted to the Johannesburg Water who have subsequently provided comments on **23 November 2020** where they support the development. In particular they note:

*"The proposed development is located in the RW1269 Direct Feed Water District and specifically in the Radiokop PRV2 water subdistrict. The proposed connection point is on the existing 110mm diameter pipe along Fiddle Avenue. The existing infrastructure including bulk has enough capacity to accommodate the anticipated demand for the proposed 78 units to be constructed on site. The proposed development is therefore supported."*

## 3. Power Supply

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

City Power

If power supply is not available, where will power be sourced from?

Not applicable.

## 4. Energy Efficiency

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The development design will comply with the NHBRC standards for energy efficiency (SANS 10400).

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

As mentioned, the buildings will comply with NHBRC standards (SANS 10400) for energy efficiency. As part of this, the following measures will be investigated and put in place as applicable:

- Energy saving measures for water heating (for example heat pumps or solar);
- LED lamps;
- General control switching (to minimise use of lights when not needed); and
- Energy saving appliances.

# SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i)).

## 1. Issues raised by Interested and Affected Parties

Summarise the issues raised by interested and affected parties.

During the initial registration, a number of requests for I&AP Registration were made as well requests for further information. Some concern was raised regarding the following:

- Traffic Impact;
- Services;
- Number of units; and
- Safety and Security.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

Please refer to the Comments and Responses Report for detailed responses. In summary the following responses were provided:

- Formal responses acknowledging receipt of requests for registration were made.
- It was also clarified that 78 units in total would be provided (not 78 3 storey buildings).
- It was also further explained that more information on the proposed development would be available as part of the Basic Assessment Report. This would include information on roads/traffic and services.

## 2. Impacts that may result from the Construction and Operational Phase

Briefly describe the methodology utilised in the rating of significance of impacts

Impacts were identified in a number of ways including the following:

- Impacts associated with triggered activities contained in Listing Notice 1 and 3 of the EIA Regulations, 2014 (as amended) for which authorisation has been applied for;
- Impacts identified by specialists;
- An assessment of the project activities and components; and
- Issues highlighted by I&APs (both the general public and authorities).

The significance of the identified impacts was determined using the approach outlined below which is line with the requirements of the EIA Regulations, 2014. Each impact was assessed for both the Proposal as well as Alternative 1.

The **significance** of an impact is defined as the combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The nature and type of impact may be direct or indirect and may also be positive or negative, refer to **Table 3**: below for the specific definitions.

**Table 3: Nature and type of impact.**

Nature and Type of Impact:			
<b>IMPACT</b>	<b>Direct</b>	Impacts that are caused directly by the activity and generally occur at the same time and place as the activity	<input type="checkbox"/> / <input type="checkbox"/>
	<b>Indirect</b>	Indirect or induced changes that may occur as a result of the activity. These include all impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity	<input type="checkbox"/> / <input type="checkbox"/>
	<b>Cumulative</b>	Those impacts associated with the activity which add to, or interact synergistically with existing impacts of past or existing activities, and include direct or indirect impacts which accumulate over time and space	<input type="checkbox"/> / <input type="checkbox"/>
	<b>Positive</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes will benefit significantly, and includes neutral impacts (those that are not considered to be negative)	<input type="checkbox"/>
	<b>Negative</b>	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes will be comprised	<input type="checkbox"/>

**Table 4:** presents the defined criteria used to determine the **consequence** of the impact occurring which incorporates the extent, duration and intensity (severity) of the impact.

**Table 4: Consequence of the Impact occurring.**

<b>CONSEQUENCE</b>	<b>Extent of Impact:</b>	
	<b>Site</b>	Impact is limited to the site and immediate surroundings, within the study site boundary or property (immobile impacts)
	<b>Neighbouring</b>	Impact extends across the site boundary to adjacent properties (mobile impacts)
	<b>Local</b>	Impact occurs within a 5km radius of the site
	<b>Regional</b>	Impact occurs within a provincial boundary
	<b>National</b>	Impact occurs across one or more provincial boundaries
	<b>Duration of Impact:</b>	
	<b>Incidental</b>	The impact will cease almost immediately (within weeks) if the activity is stopped, or may occur during isolated or sporadic incidences
	<b>Short-term</b>	The impact is limited to the construction phase, or the impact will cease within 1 - 2 years if the activity is stopped
	<b>Medium-term</b>	The impact will cease within 5 years if the activity is stopped
	<b>Long-term</b>	The impact will cease after the operational life of the activity, either by natural processes or by human intervention
	<b>Permanent</b>	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient
	<b>Intensity or Severity of Impact:</b>	
	<b>Low</b>	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are not affected
	<b>Low-Medium</b>	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are modified insignificantly
	<b>Medium</b>	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are altered
	<b>Medium-High</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are severely altered
	<b>High</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes will permanently cease

The probability of the impact occurring is the likelihood of the impacts actually occurring and is determined based on the classification provided in **Table 5**.

**Table 5: Probability and confidence of impact prediction**

<b>PROBABILITY</b>	<b>Probability of Potential Impact Occurrence:</b>	
	<b>Improbable</b>	The possibility of the impact materialising is very low either because of design or historic experience
	<b>Possible</b>	The possibility of the impact materialising is low either because of design or historic experience
	<b>Likely</b>	There is a possibility that the impact will occur
	<b>Highly Likely</b>	There is a distinct possibility that the impact will occur
	<b>Definite</b>	The impact will occur regardless of any prevention measures

The **significance** of the impact is determined by considering the consequence and probability without taking into account any mitigation or management measures and is then ranked according to the ratings listed in **Table 6:**. The level of confidence associated with the impact prediction is also considered as low, medium or high (**Table 7:**).

**Table 6: Significance rating of the impact.**

SIGNIFICANCE	Significance Ratings:	
	Low	Neither environmental nor social and cultural receptors will be adversely affected by the impact. Management measures are usually not provided for low impacts
	Low-Medium	Management measures are usually encouraged to ensure that the impacts remain of Low-Medium significance. Management measures may be proposed to ensure that the significance ranking remains low-medium
	Medium	Natural, cultural and/or social functions and processes are altered by the activities, and management measures must be provided to reduce the significance rating
	Medium-High	Natural, cultural and/or social functions and processes are altered significantly by the activities, although management measures may still be feasible
	High	Natural, cultural, and/or social functions and processes are adversely affected by the activities. The precautionary approach will be adopted for all high significant impacts and all possible measures must be taken to reduce the impact

**Table 7: Level of confidence of the impact prediction**

CONFIDENCE	Level of Confidence in the Impact Prediction:	
	Low	Less than 40% sure of impact prediction due to gaps in specialist knowledge and/or availability of information
	Medium	Between 40 and 70% sure of impact prediction due to limited specialist knowledge and/or availability of information
	High	Greater than 70% sure of impact prediction due to outcome of specialist knowledge and/or availability of information

Once significance rating has been determined for each impact, management and mitigation measures must be determined for all impacts that have a significance ranking of Medium and higher in order to attempt to reduce the level of significance that the impact may reflect.

The EIA Regulations, 2014 specifically require a description is provided of the degree to which these impacts:

- can be reversed;
- may cause irreplaceable loss of resources; and
- can be avoided, managed or mitigated.

Based on the proposed mitigation measures the EAP will determine a mitigation efficiency (**Table 8:**) whereby the initial significance is re-evaluated and ranked again to affect a significance that incorporates the mitigation based on its effectiveness. The overall significance is then re-ranked and a final significance rating is determined.

**Table 8: Mitigation efficiency**

MITIGATION EFFICIENCY	Mitigation Efficiency	
	None	Not applicable
	Very Low	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact. Positive impacts will remain the same
	Low	Where the significance rating reduces by one level, after mitigation
	Medium	Where the significance rating reduces by two levels, after mitigation
	High	Where the significance rating reduces by three levels, after mitigation
	Very High	Where the significance rating reduces by more than three levels, after mitigation

The reversibility is directly proportional to the "Loss of Resource" where no loss of resource is experienced, the impact is completely reversible; where a substantial "Loss of resource" is experienced there is a medium degree of reversibility; and an irreversible impact relates to a complete loss of resources, i.e. irreplaceable (**Table 9:**).

**Table 9: Degree of reversibility and loss of resources**

<b>DEGREE REVERSABILITY &amp; LOSS OF RESOURCES</b>	<b>Loss of Resources:</b>	
	<b>No Loss</b>	No loss of social, cultural and/or ecological resource(s) are experienced. Positive impacts will not experience resource loss
	<b>Partial</b>	The activity results in an insignificant or partial loss of social, cultural and/or ecological resource(s)
	<b>Substantial</b>	The activity results in a significant loss of social, cultural and/or ecological resource(s)
	<b>Irreplaceable</b>	The activity results in the complete and irreplaceable social, cultural and/or ecological loss of resource(s)
	<b>Reversibility:</b>	
	<b>Irreversible</b>	Impacts on natural, cultural and/or social functions and processes are irreversible to the pre-impacted state in such a way that the application of resources will not cause any degree of reversibility
	<b>Medium Degree</b>	Impacts on natural, cultural and/or social functions and processes are partially reversible to the pre-impacted state if less than 50% resources are applied
	<b>High Degree</b>	Impacts on natural, cultural and/or social functions and processes are partially reversible to the pre-impacted state if more than 50% resources are applied
	<b>Reversible</b>	Impacts on natural, cultural and/or social functions and processes are fully reversible to the pre-impacted state if adequate resources are applied

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Please note that the impact assessment provided below is a summary only and that the full impact assessment is contained in **Appendix I1**. The full impact assessment provides an overview of both the probability of the impact occurring as well as the mitigation efficiency and as such gives an indication of the risk of the impact occurring as well as the risk that the mitigation will not be implemented/or be effective. Impacts associated with the proposal, alternative and no-go alternative are included in one table in order to allow for easy comparison and assessment.

Error! Reference source not found. provides the summary of construction impacts while Error! Reference source not found. provides the summary of the operation impacts.



Table 10: Impact Assessment – Construction

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>CONSTRUCTION PHASE</b>										
Atmospheric Emissions	Negative	Dust emissions	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>A speed limit of 20km/h must be maintained on all dirt roads.</li> <li>Dust suppression by means of either water or biodegradable chemical agent is required.</li> </ul>	High	Low
			Alternative 1			Low			High	High
	Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
	Negative	Emissions from vehicles and equipment (CO <sub>2</sub> , NO <sub>x</sub> , SO <sub>x</sub> , VOC's etc.)	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>In terms of transportation of workers and materials, collective transportation arrangements should be made to reduce individual car journeys where possible.</li> <li>All vehicles used during the project should be properly maintained and in good working order.</li> <li>All vehicles and other machinery should comply with road worthy requirements and comply with legislation in terms of allowable emissions.</li> </ul>	Medium	Low
			Alternative 1			Low			High	Medium
			Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required
	Negative	Noise	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Equipment and/or machinery which will be used must comply with the manufacturer's specifications on acceptable noise levels.</li> <li>Construction activities should be limited to daytime only.</li> </ul>	High	Low
			Alternative 1	No	Direct	Low	High		High	Low
			Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required
Impact to Wetland	Negative	Water quality	Proposal	Yes	Direct	Low	High	<p><b>The proposal is preferred from a water quality perspective as it reduces construction activities within the wetland. A Wetland Assessment was also undertaken and the following general measures must be implemented: stock piling outside the wetland, stormwater management dry season construction, filtration.</b></p> <p>The general measures should be implemented:</p> <ul style="list-style-type: none"> <li>Chemical toilets must be supplied and maintained during the construction phase</li> <li>Ablution facilities (chemical toilets) are to be provided by the Contractor, at a ratio of 1:10.</li> <li>Ablution facilities (chemical toilets) must be erected within 100m from all workplaces but within the development footprint.</li> <li>Toilets are to be secured to the ground, and must have a closing mechanism.</li> <li>Toilet paper must be provided at these facilities and must be serviced once per week.</li> <li>Certified contractors to maintain and remove chemical toilets regularly.</li> <li>The contractor must ensure that spillage does not occur when toilets are cleaned/serviced and contents must be properly stored and disposed of.</li> <li>Discharge of waste into the environment and/or burial of waste are strictly</li> </ul>	High	Low

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>CONSTRUCTION PHASE</b>									
		Alternative 1			Low-Medium	High	prohibited. • Sanitary arrangements must be to the satisfaction of the PM, ECO, the local authorities and the applicable legal requirements. • Drip trays must be placed under all vehicles when immobile for longer than 24 hours. Vehicles suspected of leaking must be monitored and conduct a pre start-up inspection checklist. • Drip trays must be checked and replaced for vehicles standing (parked) for prolonged periods. • Drip trays must be of a sufficient size and volume to collect any hydrocarbon leakages from a stationary vehicle. • Spill kits (absorbent material) must be available on site and in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. • Spilled substances must be contained in impermeable containers for removal to a licensed hazardous waste site. • Significant spills should be reported to the Project Manager or Contractors Manager and ECO who should report this to the relevant authority	Medium	Low
Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	None	None required. However, it should be noted that the existing state of the wetland is poor and will continue to deteriorate without rehabilitation.	Not Applicable	None
Negative	Flow Regime	Proposal	Yes	Direct	Low-Medium	High	<b>• The proposal is preferred as it limits construction within the wetland and thus reduces impacts to the flow regime during construction. A Wetland Assessment was also undertaken and the following general measures must be implemented: stock piling outside the wetland, stormwater management dry season construction, filtration.</b>  <b>In addition, a Hydropedological Assessment was undertaken and the following measures were recommended:</b> <ul style="list-style-type: none"> <li>It is suggested that suitable infill for benching be afforded, primarily as the site holds the entire hillslope (via the plug) in balance. The infilling of suitable materials will provide for the increased capacity of the site to mitigate future envisaged developments along the bottom of the site (i.e. the construction of the Metro Boulevard and intersection with Christiaan de Wet Road), simultaneously allowing for minimal destruction of the existing hillslope 'plug'.</li> <li>Where shallow interflow is dominated by deep interflow, a separate/unique mitigation must be afforded. The implicit flowpath is of high flux and reduction value, relative to the surrounding soils.</li> <li>The following are recommended:               <ul style="list-style-type: none"> <li>Onsite consultation with hydropedologist prior and during services installation</li> <li>Onsite consultation with hydropedologist prior and during cut and fill design (levels to be determined)</li> <li>Bedrock was not encountered during the survey. (Geo-tech report also corroborates same). Soil rock interface was not encountered due to limitation of the use of TLB machinery. Hand auguring was not permissible due to the hardness of the material. It is thus recommended that a mechanical (drill type) investigation be conducted to confirm bedrock conditions.</li> <li>The topological backslope area should be further investigated in terms of the annual duration of saturation as factor for the reduction i.e. maturation of the soil (gleying).</li> <li>It should be attempted to enhance the current wetland function.                   <ul style="list-style-type: none"> <li>Wetland drivers should be maintained as far as possible.</li> <li>Water quality preservation is key.</li> </ul> </li> </ul> </li> </ul>	High	Low
		Alternative 1			Medium	High	In addition, the following general measures should be implemented:	Medium	Low

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Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>CONSTRUCTION PHASE</b>									
							<ul style="list-style-type: none"> <li>Instability and erosion of steep slopes must be stabilised immediately. Re-vegetation in consultation with landscape architect and ECO should be done if and where required.</li> <li>To reduce the loss of material by erosion, disturbance must be kept to a minimum.</li> <li>Where possible, natural vegetation should be retained to reduce the risk of erosion.</li> <li>Silt fences must be used to stabilise the site, reduce erosion and silt entering the natural environment. No unchecked silt may enter the natural environment.</li> <li>Proper stormwater management as per the approved stormwater management plan (including bio-engineered regional plan).</li> <li>Increased run-off during construction should be managed using berms, temporary cut-off drains, attenuation ponds or other suitable structures, in consultation with the ECO and resident Engineer.</li> <li>Stormwater management system is to be installed as soon as possible following site establishment, to attenuate stormwater during the construction phase, as well as during the operational phase.</li> <li>Surface-water run-off and stormwater must be directed away from trenches and areas of excavation.</li> </ul>		
Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	None	None required. However, it should be noted that the existing state of the wetland is poor and will continue to deteriorate without rehabilitation.	Not Applicable	None
Negative	Habitat	Proposal	No	Indirect	Low	High	<ul style="list-style-type: none"> <li><b>The proposal is preferred as it limits construction within the wetland and thus reduces impacts to habitat during construction. A Wetland Assessment was also undertaken and the following general measures must be implemented: stock piling outside the wetland, minimal ingress and egress.</b></li> <li>The following general measures should be implemented:</li> <li>Clearance to be limited to the development footprint.</li> <li>Wetland to be pegged prior to construction.</li> </ul>	High	Low
		Alternative 1			Low-Medium	High		Medium	Low
Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Geomorphology	Proposal	No	Direct	Low-Medium	High	<ul style="list-style-type: none"> <li><b>The proposal is preferred as it limits construction within the wetland and thus reduces impacts to geomorphology during construction. A Wetland Assessment was also undertaken and the following general measures must be implemented: stormwater management design and erosion control measures.</b></li> <li>The following general measures should be implemented:</li> <li>Instability and erosion of steep slopes must be stabilised immediately. Re-vegetation in consultation with landscape architect and ECO should be done if and where required.</li> <li>To reduce the loss of material by erosion, disturbance must be kept to a minimum.</li> <li>Where possible, natural vegetation should be retained to reduce the risk of erosion.</li> <li>Silt fences must be used to stabilise the site, reduce erosion and silt entering the natural environment. No unchecked silt may enter the natural environment.</li> <li>Proper stormwater management as per the approved stormwater management plan (including bio-engineered regional plan).</li> <li>Increased run-off during construction should be managed using berms, temporary cut-off drains, attenuation ponds or other suitable structures, in consultation with the ECO and resident Engineer.</li> <li>Stormwater management system is to be installed as soon as possible following site establishment, to attenuate stormwater during the construction phase, as well as during the operational phase.</li> <li>Surface-water run-off and stormwater must be directed away from trenches and areas of excavation.</li> </ul>	High	Low
		Alternative 1			Medium	High		Low	Low-Medium

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Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>CONSTRUCTION PHASE</b>										
	Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
	Negative	Biota	Proposal	Yes	Indirect	Low	High	<ul style="list-style-type: none"> <li>The proposal is preferred as it limits construction within the wetland and thus indirectly reduces impacts to biota during construction. A Wetland Assessment was also undertaken and the following general measures must be implemented: stockpiling outside the wetland area, minimal ingress or egress. The following general measures should be implemented:               <ul style="list-style-type: none"> <li>Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site;</li> <li>No trapping, killing or poisoning of any wildlife should be allowed on site;</li> <li>Staff should be educated about the sensitivity of faunal species and measures should be put in place to deal with any species that are encountered during the construction process. The intentional killing of any animals including snakes, insects, lizards, birds or other animals should be strictly prohibited.</li> </ul> </li> </ul>	High	Low
			Alternative 1			Low-Medium	High		Medium	Low
	Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Waste Generation	Negative	Domestic waste	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>Waste recycling to be put in place.</li> <li>Solid waste shall only be stored in the designated general waste storage area which must be enclosed and impermeable.</li> <li>All solid waste shall be disposed of by a certified contractor, off-site, at an approved landfill site. The Contractor shall supply the ECO with a certificate of disposal for auditing purposes.</li> </ul>	Medium	Low
			Alternative 1			Low	High		Medium	Low
			No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
	Negative	Construction waste	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>Litter (from outside the camp included) and concrete bags etc. must be collected and put into suitable closed bins on a daily basis.</li> <li>Construction rubble must be disposed of at a registered site</li> <li>No Construction rubble may be used for infilling.</li> </ul>	Medium	Low
			Alternative 1			Low	High		Medium	Low
			No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
	Negative	Hazardous waste	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>The classification of waste determines the handling methods and the ultimate disposal of the material. The contractor shall manage hazardous waste that are anticipated to be generated by his operations as follows: Characterise the waste to determine if it is general or hazardous. Obtain and provide an acceptable container with a label. Place hazardous waste material in the container. Inspect the container on a regular basis Haul the full container to the licenced and correct disposal site. Provide documentary evidence of proper disposal of the waste.</li> <li>Only temporary storage of waste is allowed (once of storage of waste for a period</li> </ul>	Medium	Low

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Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>CONSTRUCTION PHASE</b>										
		Alternative 1	Yes	Direct	Low	High	less than 90 days). The volume of material should be limited to less than 80m3 of hazardous waste. Should this be exceeded the Norms and Standards for the Storage of Waste will need to be complied with.	Medium	Low	
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Soil Alteration	Negative	Loss of topsoil	Proposal	Yes	Direct	Medium	High	<ul style="list-style-type: none"> <li>• The proposal is preferred as it limits construction within the Erf 1328 and thus indirectly reduces loss of topsoil. In addition, the following general measures should be implemented:</li> <li>• Top soil should be separated and re-used where possible.</li> </ul>	Medium	Low
			Alternative 1			Medium-High			High	Medium
			No-Go Option	Yes	Direct	Low-Medium	High		The site is degraded by historic land use. It is likely that there will be a continued loss of topsoil should the development not proceed as the site will remain in its degraded state.	None
	Negative	Loss of land capability	Proposal	Yes	Direct	Low-Medium	High	<ul style="list-style-type: none"> <li>•According to the Gauteng Agricultural Potential Atlas IV, the agricultural potential of the site is high whereas the National Screening tool notes that it has a medium sensitivity. However, the site has not been used for agriculture and is degraded. The site is also identified as urban in terms of the GPEMF and is surrounded by residential uses. Therefore, whilst the site may have previously had some potential, it is not located in an area conducive to farming. The development footprint is also fairly small and thus would not provide enough area for farming practices. Therefore, it is not expected to be a significant loss.</li> </ul>	None	Low-Medium
			Alternative 1			Low-Medium			High	None
			No-Go Option	Not Applicable	Not Applicable	None	High		None required	Not Applicable
	Negative	Alteration of topography	Proposal	No	Direct	Low-Medium	High	<ul style="list-style-type: none"> <li>Some of the Topography within the development footprint will be altered as part of the development. In order to ensure the change in topography does not impact stormwater, the following must be implemented:</li> <li>• Stormwater management measures must be implemented to ensure these designs do not impact on stormwater.</li> </ul>	Medium	Low
			Alternative 1			Low-Medium			High	Medium
			No-Go Option	Not Applicable	Not Applicable	None	High		None required	Not Applicable
	Negative	Soil pollution	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>• Drip trays must be placed under all vehicles when immobile for longer than 24 hours. Vehicles suspected of leaking must be monitored and conduct a pre start-up inspection checklist.</li> <li>• All vehicle/equipment maintenance and washing must be done in the workshop area, equipped with a bund wall and grease trap oil separator.</li> <li>• Workshop area must be monitored for fuel and oil spills.</li> <li>• Drip trays must be checked and replaced for vehicles standing (parked) for prolonged periods.</li> <li>• Drip trays must be of a sufficient size and volume to collect any hydrocarbon leakages from a stationary vehicle.</li> </ul>	High	Low

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Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance		
<b>CONSTRUCTION PHASE</b>											
		Alternative 1			Low	High	<ul style="list-style-type: none"> <li>Spill kits (absorbent material) must be available on site and in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site.</li> <li>Spilled substances must be contained in impermeable containers for removal to a licensed hazardous waste site.</li> <li>Significant spills should be reported to the Project Manager or Contractors Manager and ECO who should report this to the relevant authority.</li> <li>Waste must be managed in line with the requirements of the EMP.</li> </ul>	High	Low		
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None		
Resource Consumption	Negative	Electricity consumption	Proposal	Yes	Direct	None	High	•During the construction phase the contractors will mainly make use of generators.	None	None	
			Alternative 1			None			None		
			No-Go Option			Not Applicable			Not Applicable	None	High
	Negative	Water consumption	Proposal	Yes	Direct	Low-Medium	High	<ul style="list-style-type: none"> <li>Enforce water saving strategies.</li> <li>Environmental awareness training.</li> </ul>	Low	Low	
			Alternative 1			Low-Medium			High	Low	Low
			No-Go Option			Not Applicable			Not Applicable	None	High
	Negative	Fuel consumption	Proposal	Yes	Direct	Low-Medium	High	<ul style="list-style-type: none"> <li>Record and monitor fuel consumption regularly</li> <li>Reduce theft of fuel (increase security)</li> </ul>	Low	Low	
			Alternative 1			Low-Medium			High	Low	Low
			No-Go Option			Not Applicable			Not Applicable	None	High
	Negative	Raw materials consumption	Proposal	Yes	Direct	Low-Medium	High	• Promote effective use of raw material.	Low	Low	
			Alternative 1			Low-Medium			High	Low	Low
			No-Go Option			Not Applicable			Not Applicable	None	High
Effects on Biodiversity	Negative	Loss of habitat due to Digging and laying foundations	Proposal	Yes	Direct	Medium	High	<ul style="list-style-type: none"> <li><b>The proposal is preferred as it limits the construction footprint and therefore loss of habitat. A Baseline Ecological Habitat Assessment was also undertaken and the following general measures must be implemented: no unauthorised construction activities within the wetland or wetland buffer.</b></li> <li>*The following general measures should be implemented:</li> <li>* Wetland and wetland buffer to be pegged prior to construction</li> </ul>	Low	Low-Medium	
			Alternative 1			Medium			High	Low	Low-Medium
			No-Go Option			Not Applicable			Not Applicable	None	High
	Negative	Loss of habitat due to construction camps & lay down areas	Proposal	Yes	Direct	Low-Medium	Medium	<ul style="list-style-type: none"> <li><b>The proposal is preferred as it limits the construction footprint and therefore loss of habitat. A Baseline Ecological Habitat Assessment was also undertaken and the following general measures must be implemented: construction and laydown areas should be established outside of the wetland buffer.</b></li> <li>*The following general measures should be implemented:</li> <li>* Wetland and wetland buffer to be pegged prior to construction</li> </ul>	Medium	Low	
			Alternative 1			Low-Medium			Medium	Medium	Low
			No-Go Option			Not Applicable			Not Applicable	None	High



IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>CONSTRUCTION PHASE</b>									
	Loss of habitat - Stochastic events such as fire	Proposal	Yes	Direct	Low	Medium	A Baseline Ecological Habitat Assessment was undertaken and the following general measures must be implemented: fires shall only be permitted in specially designed areas and under controlled circumstances.	High	Low
		Alternative 1			Low	Medium		High	Low
		No-Go Option			Not Applicable	Not Applicable		None	High
Negative	Direct mortality of fauna - Staff or construction workers poaching and hunting	Proposal	No	Direct	Low	Medium	Both layouts are similar and thus impacts in regards to fauna mortality are similar. The Baseline Ecological Habitat Assessment did not identify any sensitive fauna on site. The following mitigation measures suggested by the specialist will be undertaken: * Snaring and hunting of fauna by construction workers on or adjacent to the study area are strictly prohibited.	High	Low
		Alternative 1			Low	Medium		High	Low
		No-Go Option			None	High		None required. However, please note that the site is highly disturbed and degraded in parts.	Not Applicable
	Direct mortality of fauna - Vegetation clearing resulting in loss of sensitive species	Proposal	No	Direct	Low-Medium	Medium	• The proposal is preferred as it limits the construction footprint and therefore decreases vegetation clearing result in a loss of sensitive species. A Baseline Ecological Habitat Assessment was also undertaken and the following general measures must be implemented: Clearing of vegetation is not allowed within the buffer or wetland area other than for those activities that are authorised. It is recommended that all Hypoxis sp. and Boophone sp. should be removed prior to construction activities and either relocated to a similar type of environment or implemented within the landscaping plan of the proposed development.	Low	Low
		Alternative 1			Low-Medium	Medium		Low	Low
		No-Go Option			None	High		None required. However, please note that the site is highly disturbed and degraded in parts.	Not Applicable
	Direct mortality of fauna - Intentional killing of fauna	Proposal	No	Direct	Low	Medium	Both layouts are similar and thus impacts in regards to fauna mortality are similar. The Baseline Ecological Habitat Assessment and did not identify any sensitive fauna on site. The following mitigation measures suggested by the specialist will be undertaken: *Killing of fauna on or adjacent to the study area are strictly prohibited. Should any fauna species be found on site, the ECO should be conducted asap to provide recommendation or mitigation measures.	Medium	Low
		Alternative 1			Low	Medium		Medium	Low
		No-Go Option			None	High		None required. However, please note that the site is highly disturbed and degraded in parts.	Not Applicable
Negative	Disruption of ecological life cycles due to the restriction of	Proposal	Yes	Direct	Low	Medium	Both layouts will require the same service connection and thus extent of trenches required will be similar. The Baseline Ecological Habitat Assessment was undertaken and the following mitigation measures suggested by the specialist will be	High	Low

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Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>CONSTRUCTION PHASE</b>									
	species movement - Open trenches and other linear barriers	Alternative 1			Low	Medium	undertaken: 'Trenches and other linear barriers should not be kept open for to long, especially not staying open over night.	High	Low
		No-Go Option			None	High	None required	Not Applicable	None
	Disruption of ecological life cycles due to the restriction of species movement - Infrastructure	Proposal	Yes	Direct	Medium	High	Both layouts are similar and thus will require the same service infrastructure. The Baseline Ecological Habitat Assessment suggested the following mitigation measures : 'Stormwater, sewer and road infrastructure should be designed in such a way that it will have minimal impact on the environment.	High	Low
		Alternative 1			Medium	High		High	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Disruption of ecological life cycles due to noise and lighting - Noise during construction	Proposal	Yes	Direct	Low	High	Both layouts are similar and thus impacts are similar. The following mitigation measures suggested by the specialist will be undertaken: 'Construction must be restricted to hours of 07:00 and 17:00. Should construction activities need to continue over a weekend/public holiday or is expected to be excessively noisy, all Interested and Affected Parties and the ECO must be notified in advance.	Medium	Low
					Alternative 1	Low		High	Medium
			No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable
Negative	Disruption of ecological life cycles due to noise and lighting - Light during construction	Proposal	Yes	Direct	Low-Medium	High	Both layouts are similar and thus impacts are similar. The following mitigation measures suggested by the specialist will be undertaken: 'Construction must be restricted to hours of 07:00 and 17:00. Should construction activities need to continue after hours is, all Interested and Affected Parties and the ECO must be notified in advance. Excessive lighting during construction should be avoided.	Medium	Low
					Alternative 1	Low-Medium		High	Medium
			No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable
Negative	Introduction of alien flora affecting native faunal assemblages - Vehicles and machinery	Proposal	Yes	Direct	Low	High	• The proposal is preferred as it limits the construction footprint and therefore decreases vehicles and machinery in the more sensitive wetland area. A Baseline Ecological Habitat Assessment was also undertaken and the following general measures must be implemented: 'Alien, invasive species found within the construction area should be eradicated as far as possible and disposed of at a registered site. Measures to prevent siltation from entering the wetland area, should be implemented throughout the construction phase.	High	Low
					Alternative 1	Low		High	High
			No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable



IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>CONSTRUCTION PHASE</b>										
Negative	Introduction of alien flora affecting native faunal assemblages - soil disturbances	Proposal	Yes	Direct	Low	High	<ul style="list-style-type: none"> <li>The proposal is preferred as it limits the construction footprint and therefore soil disturbances especially in the more sensitive wetland area. A Baseline Ecological Habitat Assessment was also undertaken and the following general measures must be implemented: 'Alien, invasive species found within the construction area should be eradicated as far as possible and disposed of at a registered site. Measures to prevent siltation from entering the wetland area, should be implemented throughout the construction phase.</li> </ul>	High	Low	
		Alternative 1			Low	High		High	Low	
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Negative	Pollution incidents	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Spill kits to be located in strategic areas for when needed</li> <li>Regular site and plant inspection must be conducted</li> <li>Environmental awareness training</li> </ul>	Low	Low	
		Alternative 1			Low	High		Low	Low	
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Negative	Health and safety	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>24 hour security and access control.</li> <li>Health and Safety awareness training.</li> <li>Contractor to submit a Health and Safety Plan, prepared in accordance with the Health and Safety Specification, for approval prior to the commencement of work.</li> <li>A Safety Agent should be appointed</li> <li>A Dedicated Occupational Health and Safety system to be implemented by Contractor's Safety Officer. To be monitored and audited by the Client's Safety Agent, in terms of the Construction Regulations (2003).</li> </ul>	Low	Low	
		Alternative 1			Low	High		Low	Low	
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Negative	Storage of hydrocarbons	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Best practice regarding storage of substances</li> <li>Spill kits to be located in strategic areas for when needed</li> <li>Environmental awareness training</li> <li>Firefighting equipment must be accessible on site at all times.</li> <li>Display of emergency numbers</li> </ul>	Low	Low	
		Alternative 1			Low	High		Low	Low	
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Negative	Fire	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Adhere to the appropriate emergency procedures</li> <li>Firefighting equipment must be accessible on site at all times.</li> <li>Display of emergency numbers</li> <li>In addition, designated smoking areas should be provided and there should be zero tolerance to smoking outside these areas. Cooking over open flames is not allowed.</li> </ul>	Low	Low	
		Alternative 1			Low	High		Low	Low	
		No-Go Option	No	Direct	Low	High	The site is currently unoccupied and the risk for fire remains.	None	Low	
Social	Negative	Visual impact	Proposal	Yes	Direct	Low	High	During construction, the site should be screened or walled off.	High	Low

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<b>CONSTRUCTION PHASE</b>									
		Alternative 1			Low	High		High	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Safety and security	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>24 hour access control to the site and 24 hour security.</li> <li>Workers found to be engaging in activities such as excessive consumption of alcohol, drug use or selling of any such items on site must be disciplined.</li> </ul>	Medium	Low
		Alternative 1			Low	High		Medium	Low
		No-Go Option	No	Direct	Low	High	The site is currently unoccupied. Should the develop not take place, there may be further safety and security issues in the area.	None	Low
Negative	Traffic disruptions	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Traffic calming measures and appropriate signage to be implemented where necessary during construction.</li> <li>Speed limits on all existing roads must be adhered to at all times.</li> </ul>	Low	Low
		Alternative 1			Low	High		Low	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Loss of cultural heritage	Proposal	No	Direct	Low	High	A Heritage Impact Assessment was undertaken and the following mitigation measures recommended: •Implementation of the chance find procedure.	High	Low
		Alternative 1			Low	High		High	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Loss of sense of place	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Suitable screening to be put in place during construction to minimise visual impacts.</li> <li>No littering to be allowed.</li> <li>Good housekeeping practices to be followed</li> </ul>	Low	Low
		Alternative 1			Low	High		Low	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Positive	Change of land use	Proposal	Yes	Direct	+Medium	High	The Conditions of Establishment have been approved. The proposed change in land use is in line with the Region C Spatial Development Plan and the COJ 2040 Spatial Development Framework. No mitigation measures other than the townplanning process is required.	Low	+Medium

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>CONSTRUCTION PHASE</b>										
		Alternative 1			<b>+Medium</b>	High		Low	<b>+Medium</b>	
	Not Applicable	No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None	
Economic	Positive	Proposal	Yes	Direct	<b>+Medium</b>	High	The proposed CAPEX value of the development will have numerous multiplier effects in the local community. In order to ensure that this benefits the local community, it is recommended that local labour and suppliers are used where possible.	Low	<b>+Medium</b>	
		Alternative 1			<b>+Medium</b>	High		Low	<b>+Medium</b>	
		No-Go Option			Medium	High		None	Medium	
	Negative						Should the development not proceed, the benefits to the local community will be long term and negative. Further, the goals of the GSDF and Regional SDP will also not be met. There are no mitigation measures available.	None	Medium	
	Positive	Proposal	No	Direct	<b>+Medium</b>	High	The development of the proposed development will increase the property value of the site overall. Further, it will have a knock on effect and is likely to increase the value of neighbouring properties as well. No mitigation measures are required.	None	<b>+Medium</b>	
		Alternative 1			<b>+Medium</b>	High		None	<b>+Medium</b>	
		No-Go Option			Medium	High		None	Medium	
	Negative						The site was is vacant and is degraded and without development, the property value is likely to decrease. This will have knock on effects on the surrounding properties. No mitigation, save for development of the site, is available.	None	Medium	
	Positive	Employment	Proposal	Yes	Direct	<b>+Medium</b>	None	The proposed development will result in a number of construction related employment opportunities for the local community. Local labour should be utilised as far as possible.	None	<b>+Medium</b>
			Alternative 1			<b>+Medium</b>	None		None	<b>+Medium</b>
No-Go Option			Medium			None	None		Medium	
Negative						Should the development not proceed, the benefits to the local community will be long term and negative as potential employment opportunities will be lost. No mitigation measures are available.	None	Medium		

Table 11: Impact Assessment – Operation

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>OPERATIONAL PHASE</b>										
Atmospheric Emissions	Not Applicable	Dust emissions	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	Not Applicable	None
			Alternative 1			None			High	Not Applicable

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>OPERATIONAL PHASE</b>									
		No-Go Option			None	High	None required	Not Applicable	None
Not Applicable	Emissions from vehicles and equipment (CO2, NOx, SOx, VOC's etc.)	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required. Whilst residents will utilize cars, they are likely to own these cars already and will not be generating additional emissions from what they do already.	Not Applicable	None
		Alternative 1			None	High		Not Applicable	None
		No-Go Option			None	High		None required	Not Applicable
Negative	Noise	Proposal	No	Direct	Low	High	• The proposed residential development is in line with activities and uses in the area and will not provide significant noise pollution. The Managing Company/Body Corporate should develop rules and regulations to manage noise in line with applicable by-laws.	High	Low
		Alternative 1			Low	High		High	Low
Not Applicable		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Negative	Water quality	Proposal	No	Direct	Low	High	• A Outline Scheme Report has been undertaken and noted that sewer will connect to an existing sewer line and be treated at an existing Treatment works. Johannesburg Water has also confirmed that sufficient capacity exists. Maintenance and management of the sewer connection must be undertaken as per COJ's requirements. Further, a Wetland Assessment has been undertaken and the specialist's mitigation measures will be undertaken: "Rehabilitation of construction impacted area, continuous monitoring, stormwater management."	High	Low
		Alternative 1			Low	High		High	Low
		No-Go Option			Not Applicable	Not Applicable		None	None
Negative	Flow Regime	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>• The proposal is preferred as it limits the attenuation is provided within the development footprint and therefore outside the wetland and wetland buffer. It therefore reduces the impact to the flow regime.</li> <li>• The Wetland Assessment has been undertaken and recommended the following mitigation measures will be implemented: "Rehabilitation of construction impacted area, continuous monitoring and maintenance, stormwater management. Further, a Stormwater Management Plan has been compiled and will be implemented.</li> <li>In addition, the following general measures should be implemented: <ul style="list-style-type: none"> <li>• Maintenance of the stormwater management system as required by the Stormwater Management Plan to be undertaken.</li> </ul> </li> </ul>	High	Low
		Alternative 1			Medium	High		Low	Low-Medium
		No-Go Option			Not Applicable	Not Applicable		None	None
Negative	Habitat	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>• The proposal is preferred as it limits the attenuation is provided within the development footprint and therefore outside the wetland and wetland buffer. It therefore reduces the impact to the wetland habitat.</li> <li>• The Wetland Assessment has been undertaken and recommended the following mitigation measures will be implemented: "Rehabilitation of construction impacted area,</li> </ul>	High	Low

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance

**OPERATIONAL PHASE**

		Alternative 1			Low-Medium	High	continuous monitoring and maintenance, stormwater management. Further, a Stormwater Management Plan has been compiled and will be implemented.	Low	Low-Medium		
	Not Applicable	No-Go Option	Not Applicable	Not Applicable	None	None	Not applicable. However, it should be noted that the habitat of the wetland system will be altered by the Metro Boulevard which is planned in the area and will occur regardless of this development proceeding.	None	None		
	Negative	Biota	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>The proposal is preferred as it limits the attenuation is provided within the development footprint and therefore outside the wetland and wetland buffer. It therefore reduces the impact to the wetland biota.</li> <li>The Wetland Assessment has been undertaken and recommended the following mitigation measures will be implemented: "Rehabilitation of construction impacted area, continuous monitoring and maintenance, stormwater management. Further, a Stormwater Management Plan has been compiled and will be implemented.</li> </ul>	High	Low	
			Alternative 1			Low-Medium	High		Low	Low-Medium	
	Not Applicable	No-Go Option	Not Applicable	Not Applicable	None	None	Not applicable. However, it should be noted that the biota of the wetland system will be affected by the Metro Boulevard which is planned in the area and will occur regardless of this development proceeding.	None	None		
	Negative	Geomorphology	Proposal	No	Indirect	Low	High	<ul style="list-style-type: none"> <li>The proposal is preferred as it limits the attenuation is provided within the development footprint and therefore outside the wetland and wetland buffer. It therefore reduces the impact to geomorphology.</li> <li>The Wetland Assessment has been undertaken and recommended the following mitigation measures will be implemented: "Rehabilitation of construction impacted area.</li> </ul>	High	Low	
			Alternative 1			Low-Medium	High		Low	Low-Medium	
	Not Applicable	No-Go Option	Not Applicable	Not Applicable	None	High	Not applicable. However, it should be noted that the biota of the wetland system will be affected by the Metro Boulevard which is planned in the area and will occur regardless of this development proceeding.	None	None		
	Waste Generation	Negative	Domestic waste	Proposal	Yes	Direct	Medium	High	<ul style="list-style-type: none"> <li>Recyclable waste streams must be separated from other waste streams. Waste to be separated into recyclable and non-recyclable waste. Waste separation needs to occur before waste is collected.</li> <li>Solid waste shall only be stored in the designated general waste storage area which must be enclosed and impermeable.</li> <li>All solid waste shall be disposed of by a certified contractor, off-site, at an approved landfill site if no municipal services are available.</li> <li>Avoidance, reduction, re-use and recycling should be practiced wherever possible.</li> </ul>	High	Low
				Alternative 1			Medium	High		High	Low
No-Go Option				None			High	None required		None	None
Not Applicable		Construction waste	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	Not Applicable	None	
			Alternative 1			None	High		Not Applicable	None	
			No-Go Option			None	High		None required	Not Applicable	None
Negative		Hazardous waste	Proposal	Not Applicable	Not Applicable	None	High	No hazardous waste is expected during operation.	Not Applicable	None	

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>OPERATIONAL PHASE</b>										
		Alternative 1			None	High		Not Applicable	None	
		No-Go Option			None	High	None required	Not Applicable	None	
<b>Soil Alteration</b>	Negative	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	Not Applicable	None	
		Alternative 1			None	High		Not Applicable	None	
		No-Go Option			Low-Medium	High		The site is highly degraded by historic land use. It is likely that there will be a continued loss of topsoil should the development not proceed as the site will remain in its degraded state	None	Low-Medium
	Not Applicable	Loss of land capability	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	None	Medium
			Alternative 1			None	High		None	Medium
			No-Go Option			None	High		None required	Not Applicable
	Not Applicable	Alteration of topography	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	None	None
			Alternative 1			None	High		None	None
			No-Go Option			None	High		None required	Not Applicable
	Negative	Soil pollution	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	None	Low
			Alternative 1			None	High		None	Low
			No-Go Option			None	High		None required	Not Applicable
<b>Resource Consumption</b>	Negative	Proposal	Yes	Direct	Medium	High	• Promote effective electricity consumption.	Low	Low-Medium	
		Alternative 1			Medium	High		Low	Low-Medium	
		No-Go Option			None	High		None required	Not Applicable	None
	Negative	Water consumption	Proposal	Yes	Direct	Medium	High	• Promote effective water conservation measures.	Medium	Low
			Alternative 1			Medium	High		Medium	Low
			No-Go Option			None	High		None required	Not Applicable
	Negative	Fuel consumption	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	Not Applicable	None
			Alternative 1			None	High		Not Applicable	None
			No-Go Option			None	High		None required	Not Applicable
	Negative	Raw materials consumption	Proposal	Yes	Direct	Low-Medium	High	• Promote effective use of raw material.	Low	Low
			Alternative 1			Low-Medium	High		Low	Low
			No-Go Option			None	High		None required	Not Applicable
<b>Effects on Biodiversity</b>	Negative	Proposal	No	Direct	Low	High	Fire extinguishers must be placed on the property.	Medium	Low	
		Alternative 1			Low	High		Medium	Low	
		No-Go Option			None	High		None required	Not Applicable	None

IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION		
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance	
<b>OPERATIONAL PHASE</b>										
Negative	Loss of fauna - Intentional killing of fauna	Proposal	No	Direct	Low	High	<ul style="list-style-type: none"> <li>It is not expected that any fauna will be found on site during operation. The Body Corporate/Managing Company must include the requirement in their rule book that should any be found that the relevant organisation be called to safely remove the species.</li> <li>Environmentally sensitive pest control.</li> </ul>	Medium	Low	
		Alternative 1			Low	High		Medium	Low	
		No-Go Option			None	High		None required	Not Applicable	None
	Negative	Disruption of ecological life cycles due to the restriction of species movement - infrastructure	Proposal	No	Direct	Low-Medium	High	The proposed layout is preferred as it limits infrastructure within the wetland and wetland buffer. Further, a Baseline Ecological Habitat Assessment was undertaken and the following recommendations from the study will be implemented: 'Stormwater and road infrastructure should be designed in such a way that it will have minimal impact on the environment. Maintenance should be undertaken as per the requirements of the stormwater management plan.	Medium	Low
			Alternative 1			Medium	High		Very Low	Medium
			No-Go Option			None	High		None required	Not Applicable
Incidents, accidents and potential emergency situations	Negative	Pollution incidents	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Sewer connection pipe must be managed and maintained in line with COJ requirements.</li> </ul>	Low	Low	
					Alternative 1	Low		High	Low	Low
					No-Go Option	Not Applicable		High	None required	Not Applicable
	Negative	Health and safety	No	Direct	Low	High	<ul style="list-style-type: none"> <li>24 hour security and access control.</li> </ul>	Low	Low	
					Alternative 1	Low		High	Low	Low
					No-Go Option	Not Applicable		High	None required	Not Applicable
	Negative	Storage of hydrocarbons	No	Direct	None	High	Impacts not applicable to the operational phase. No mitigation required.	Not Applicable	None	
					Alternative 1	None		High	Not Applicable	None
					No-Go Option	Not Applicable		High	None required	Not Applicable
	Negative	Fire	No	Direct	Low	High	<ul style="list-style-type: none"> <li>Adhere to the appropriate emergency procedures</li> <li>Firefighting equipment must be accessible on site at all times.</li> <li>Display of emergency numbers</li> </ul>	Low	Low	
					Alternative 1	Low		High	Low	Low
					No-Go Option	Low		High	The site is currently unoccupied. Should the develop not take place, the potential for fires on site and on neighbouring properties remains as is.	None
Social	Negative	Visual impact	Not Applicable	Not Applicable	None	High	As the development is in line with the development goals of the area and the existing residential developments in the area, no visual impact is expected during operation.	None	None	
					Alternative 1	None		High	None	None
					No-Go Option	None		High	None required	Not Applicable
	Positive	Safety and security	Proposal	No	Direct	+Low	High	Low	+Low	



IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance

**OPERATIONAL PHASE**

		Alternative 1			<b>+Low</b>	High	Due to the development of the site, safety and security in the area is likely to improve. In addition, the following will be implemented which will assist with this: * 24 hour access control to the site and 24 hour security.	Low	<b>+Low</b>
Negative		No-Go Option	No	Direct	Low	High	The site is currently unoccupied . Should the develop not take place, there may be further safety and security issues in the area.	None	Low
Negative	Traffic disruptions	Proposal	No	Direct	Low-Medium	High	•Access to the development to be undertaken as per the Traffic Impact Assessment. * No new roads are required as the proposed development will only generate 59 new trips.	Low	Low
		Alternative 1			Low-Medium	High		Low	Low
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Not Applicable	Loss of cultural heritage	Proposal	Not Applicable	Not Applicable	None	High	Impacts not applicable to the operational phase. No mitigation required.	None	None
		Alternative 1			None	High		None	None
		No-Go Option			None	High		None required	Not Applicable
Negative	Loss of sense of place	Proposal	No	Direct	None	High	As the development is in line with the development goals of the area and the existing residential developments in the area, no impacts to sense of place is expected during operation.	None	None
		Alternative 1			None	High		None	None
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Positive	Change of land use	Proposal	Yes	Direct	+ Medium	High	The Conditions of Establishment have been approved. The proposed change in land use is in line with the Region A Spatial Development Plan and the COJ 2040 Spatial Development Framework. No mitigation measures other than the townplanning process is required.	Low	+ Medium
		Alternative 1			+ Medium	High		Low	+ Medium
		No-Go Option	Not Applicable	Not Applicable	None	High	None required	Not Applicable	None
Economic	Positive	Proposal	Yes	Direct	+ Medium	High	Once operational the development will provide housing opportunities in the area and thus will contribute to the economy in the area as people living in the area will likely purchase goods in nearby stores etc. This will have an economic multiplier effect in the local community. No mitigation measures are required.	None	+ Medium
		Alternative 1			+ Medium	High		None	+ Medium



IMPACTS					RANKING WITHOUT MITIGATION	CONFIDENCE	IMPLEMENTATION OF MANAGEMENT MEASURES	RANKING WITH MITIGATION	
Nature	Description	Alternative	Cumulative	Type	Significance (A + B + C) X P	Confidence	Description and/or Mitigation and Management Measures (if applicable)	Mitigation Effectiveness	Significance
<b>OPERATIONAL PHASE</b>									
Negative		No-Go Option			Medium	High	Should the development not proceed, the benefits to the local community will be long term and negative. Further, the goals of the COJ SDF 2040 and Regional SDP will also not be met. There are no mitigation measures available,	None	Medium
Positive	Decline/increase in property value	Proposal	No	Direct	+ Medium	High	The development of the a residential development will increase the property value of the site overall. Further, it will have a knock on effect and is likely to increase the value of neighbouring properties as well. No mitigation measures are required. Due to the market preference for clusters, there is a increased positive benefit for the proposal.	None	+ Medium
		Alternative 1			+ Medium	High		None	+ Medium
Negative		No-Go Option			Medium	High	The site was previously is vacant and degraded and without development, the property value is likely to decrease. This will have knock on effects on the surrounding properties. No mitigation, save for development of the site, is available.	None	Medium
Positive	Employment	Proposal	Yes	Direct	+ Medium	None	The proposed development will result in approximately 31 permanent full time operation related employment opportunities for the local community. Local labour should be utilised as far as possible.	None	+ Medium
		Alternative 1			+ Medium	None		None	+ Medium
Negative		No-Go Option			Medium	None	Should the development not proceed, the benefits to the local community will be long term and negative as potential employment opportunities will be lost. No mitigation measures are available.	None	Medium

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

The following environmental specialist studies have been undertaken and have been used to better understand potential impacts:

- Wetland Assessment;
- Baseline Ecological Habitat Assessment;
- Geotechnical Assessment; and
- Phase 1 Heritage Impact Assessment,.

In addition, the following technical studies have been undertaken:

- Traffic Impact Assessment;
- Outline Scheme Report;
- Stormwater Management Plan; and
- Geotechnical Report.

These studies are all included in **Appendix G**.

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

The following gaps and/or assumptions were associated with the specialist studies.

Wetland Assessment:

- The study was limited to a snapshot view during a few site visits. The field investigations were undertaken during January 2020 to assess and confirm the delineated Wetland zones present on the survey area. The wetland's northern bank was surveyed less intensely and mostly based on desktop level delineations as this area will not be impacted by the developed. The eastern section adjacent to the proposed development was surveyed in detail. Weather conditions during the survey were favourable for recordings. The delineations were recorded by hand held GPS.
- It must be noted that, during the process of converting spatial data to final output drawings, several steps are followed that may affect the accuracy of areas delineated. Due care has been taken to preserve accuracy. Printing or other forms of reproduction may also distort the scale indicated in maps. It is therefore suggested that the wetland areas identified in this report be pegged in the field in collaboration with the surveyor for precise boundaries.
- It is unlikely that more surveys would alter the outcome of this study radically.

Hydropedological Assessment:

- The study was limited to a snapshot view during a few site visits. The field investigations were undertaken on 19 November 2021 to assess and confirm the hydropedology of the survey area. Weather conditions during the survey were favourable for recordings. The location recordings were recorded by handheld GPS.
- It must be noted that, during the process of converting spatial data into final output drawings, several steps are followed that may affect the accuracy of areas presented. Due care was taken to preserve accuracy. Printing or other forms of reproduction may also distort the scale indicated in maps. It is therefore suggested that the key areas identified in this report be pegged in the field in collaboration with the surveyor for precise boundaries.
- It is unlikely that more surveys would alter the outcome of this study radically.

Ecological Assessment:

- All information acquired for the Ecological Habitat Assessment was assumed to be correct. Which includes all GIS data and website information used to determine all previous recordings of Fauna and Flora species possible to be found on site.
- The study was limited to a snapshot view during one site visit and aimed only to confirm the desktop assessment. No detailed plant species lists, or faunal trapping was therefore undertaken as the site is disturbed.

Heritage Impact Assessment:

- The authors acknowledge that the brief literature review is not exhaustive on the literature of the area.
- Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Similarly, the depth of the deposit of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys.
- This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components will be highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this Impact Assessment

### 3. Impacts that may result from the Decommissioning and Closure Phase

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

It is not expected that the development will be decommissioned. As such, impacts related to decommissioning and closure are not applicable.

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Not applicable.

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

Not applicable.

### 4. Cumulative Impacts

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Cumulative impacts are those impacts that are created as a result of the combination of impacts of the proposed project, with impacts of other projects or operations, to cause related impacts, as well as a single impact over a certain time period which then results in the accumulation of negative/ positive impacts making the significance higher. These impacts occur when the incremental impact of the project, combined with the effects of other past, present and reasonably foreseeable future projects, are cumulatively considered.

Cumulative impacts are included in the detailed impact assessment included in **Appendix I1** but in summary, the following impacts have been considered as cumulative for each phase of development:

#### Construction Phase:

- Dust emissions
- Emissions from vehicles and equipment (CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, VOC's etc.)
- Water quality
- Flow regime
- Biota
- Domestic waste
- Construction waste
- Hazardous waste
- Loss of topsoil
- Loss of land capability
- Electricity consumption
- Water consumption
- Fuel consumption
- Raw materials consumption
- Loss of habitat due to Digging and laying foundations
- Loss of habitat due to construction camps & lay down areas
- Loss of habitat - Stochastic events such as fire
- Direct mortality of fauna - Vegetation and ground clearing (resulting in fauna mortality)
- Disruption of ecological life cycles due to the restriction of species movement -Open trenches and other linear barriers
- Disruption of ecological life cycles due to the restriction of species movement -Infrastructure
- Disruption of ecological life cycles due to noise and lighting - Noise during construction
- Disruption of ecological life cycles due to noise and lighting - Noise during construction
- Introduction of alien flora affecting native faunal assemblages - Vehicles and machinery
- Introduction of alien flora affecting native faunal assemblages - soil disturbances
- Visual impact
- Change of land use
- Decline/increase in economy

- Employment

**Operational Phase:**

- Emissions from vehicles and equipment (CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, VOC's etc.)
- Domestic Waste
- Electricity consumption
- Water consumption
- Fuel consumption
- Raw Material Consumption
- Visual Impact
- Change of Land Use
- Decline/increase in economy
- Employment

It should be noted that even considering their cumulative nature, these impacts could be satisfactorily mitigated.

## 5. Environmental Impact Statement

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

**Proposal**

The proposed Strubensvallei Ext. 24 will involve the development of Erf 1327 and Erf 1328. The following rights are applicable to Erf 1327:

- Zoning Residential 3
- Site Area 1.9724 ha
- Height 3 Storeys (with council consent))
- Coverage 40%
- Floor Area Ratio (FAR) 0.4
- Density 40 units per hectare
- Number of units 72 units
- Number of Parking Bays 166 parking bays
- Refuse Area Details 41 m<sup>2</sup>

Erf 1328 will not be developed but will remain public open space.

The site is affected by the future Metro Boulevard planned by the Johannesburg Roads Agency which is excluded from the project footprint. Necessary access, internal roads and services will also be put in place as follows:

- Water Services - A new 110 mm diameter mPVC pipe (SANS 1283) will be put in place within the new access road and will connect to this existing pipe. The length of this connection is approximately 180m.
- Sewer Services - A new 160mm-diameter uPVC CL 400 H/D pipe will connect into the existing sewer system by means of a new manhole. This new connection pipeline is approximately 51m in length.
- Stormwater services - An internal stormwater reticulation system will be put in place and will utilize 160mm and 300mm pipes to direct stormwater to 300mm and 375mm OGEE pipe which will run down the eastern side of the development and lead to a stormwater attenuation pond which will be approximately 231 m<sup>2</sup> in extent. From there, a 450mm OGEE pipe will discharge water under the proposed Metro boulevard into Erf 1348. The length of this pipe is approximately 79m.
- Access - The site access will be provided from the cul-de-sac intersecting with Fiddle Avenue. As part of the development, this new cul-de-sac and new section of surfaced road extending to the existing Fiddle Avenue road surface will be constructed to council standards and handed over to council upon completion and acceptance of the road infrastructure. This road will include one inbound lane with a minimum width of 3.0m and one outbound lane with a minimum width 4.5m. A 2m paved sidewalk along the northern side of the cul-de-sac will also be provided.

The proposal involves of 72 "Residential 3" units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development

and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg. In contrast with the alternative, the proposal limits the impact to the wetland the development footprint (save for the sewer connection and stormwater pipe) is within Erf 1327 and does not encroach on the wetland or wetland buffer area. This reduces impacts to wetland interflows. It also reduces potential water quality issues. Lastly, the proposal does not encroach on the Zone 2 of the GPEMF whilst the alternative does. The proposal therefore reduces the impact to the Zone 2 area.

Based on the findings of the specialist studies and impact assessment and taking into account the successful implementation of the EMP, it is felt that **the Proposal** should be authorised. The reasons for this opinion are discussed in more detail in the following subsections:

### **1. Need for the Project**

In terms of the need and desirability of the project, it should be noted that the proposed development will further the objectives of the Region C Regional Spatial Development Plan (RSDF) by supporting the development, infill and densification of Sub Area 7 within the Urban Development Boundary (UDB) (Intervention 1 of Development Objective 1). This includes the following guidelines:

- Support residential densities of between 40-60 dwelling units/ha to promote infill; and
- Development with the Urban Development Boundary”

The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.

The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvallei Extension 24 development, does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.

Lastly, the development footprint of proposed development falls within Zone 1: Urban Development Boundary (UDB) of the Gauteng Provincial Environmental Management Framework (GPEMF). The intention of this zone is *“to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the COJ Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.”* The proposed development is therefore in line with the GPEMF. Whilst Erf 1328 falls within Zone 2 of the GPEMF, this erf will be zoned as Public Open Space and will not be developed.

Lastly the proposed development will provide numerous economic benefits. Firstly, during construction, there will be a direct CAPEX of R80 million. Secondly, 347 construction related employment opportunities will be created. During operation, 35 permanent positions will be created. This will also have several economic multiplier effects for the local economy.

### **2. Sensitivity**

In order to better understand the environmental sensitivity and the potential impacts related to the development the following specialist studies have been undertaken:

- Baseline Ecological Habitat Assessment;
- Heritage Impact Assessment;
- Hydropedological Assessment; and
- Wetland Assessment.

In summary, the Baseline Ecological Habitat Assessment noted that whilst from a desktop perspective, the proposed development occurs within the Egoli Granite Grassland (Endangered) vegetation type, the site assessment found that the study area is disturbed in terms of aspects such as human activities in the study site, presence of alien invasive species on site and minimum habitat for most fauna species. The site does not constitute Egoli Granite Grassland. Further, the site was actively surveyed to determine the current status of the habitats on site. Two main habitat types were identified within the study site, namely Disturbed; and Wetland area. The disturbed areas include areas transformed due to historical activities (consisting of dumping and compact roads and pathways made by vehicles and humans) as well as sections of grassland with pioneer and alien invasive species. The Wetland

area occurs to the south of the development footprint and includes wetland and grassland features found on the riparian section. The area of the site includes species such as *Berkheya* sp., *Hypoxis* sp. and *Imperata* sp. The habitats identified were identified as having a medium to low sensitivity. In addition, two SCC were identified on site, namely *Hypoxis hemerocallidea* and *Boophone disticha*. Whilst these species are classified as “Least Concern” in terms of Red Data List, GDARD has confirmed that they should be considered as “Orange List” species in Gauteng due to provincial level pressures. Therefore, in order to mitigate impacts to these species, a Search and Rescue and Relocation Plan has been devised and included in Appendix E of the Baseline Ecological Assessment. Impacts to these species are expected to be low with the implementation of the necessary mitigation. The specialist concluded that the development can proceed with the implementation of all necessary mitigation measures.

A Heritage Impact Assessment was undertaken and noted that the the study area is located in a densely developed residential area and surrounding developments and road construction as well as dumping activities would have impacted on surface evidence of heritage site if any ever occurred in the area. The study area has been modified and altered through the extensive developments in the area and a visual and physical inspection of the proposed site recorded no structures older than 60 years or archaeological finds of significance. Based on the SAHRA Paleontological map the area is of insignificant paleontological sensitivity and no further studies are required for this aspect. Further, no significant heritage resources will be affected by the development and therefore the impact of the project on heritage resources are low and the project can commence based on the implementation of the recommendations in this report and the approval of SAHRA. The specialist noted that a chance find procedure for the project must be implemented and as such, this has been included in the Environmental Management Programme (EMPr).

A Hydropedological Assessment was undertaken and found that the site is hydropedologically complex, yet once the extent and location of various processes and expressions (flowpaths and storage mechanisms express, naturally) is understood, appropriate mitigative actions can be taken to divert the functionality to be in functionality with the imposed arbitrary development. Due to the nature of the site, the specialists recommended that suitable infill for benching be afforded, primarily as the site holds the entire hillslope (via the plug) in balance. The infilling of suitable materials will provide for the increased capacity of the site to mitigate future envisaged developments along the bottom of the site (i.e. the construction of the Metro Boulevard and intersection with Christiaan de Wet Road), simultaneously allowing for minimal destruction of the existing hillslope ‘plug’. Where shallow interflow is dominated by deep interflow, a separate/unique mitigation must be afforded. The implicit flowpath is of high flux and reduction value, relative to the surrounding soils. The following was therefore recommended:

- Onsite consultation with hydropedologist prior and during services installation
- Onsite consultation with hydropedologist prior and during cut and fill design (levels to be determined)
- Bedrock was not encountered during the survey. (Geo-tech report also corroborates same). Soil rock interface was not encountered due to limitation of the use of TLB machinery. Hand auguring was not permissible due to the hardness of the material. It is thus recommended that a mechanical (drill type) investigation be conducted to confirm bedrock conditions.
- The topological backslope area should be further investigated in terms of the annual duration of saturation as factor for the reduction i.e. maturation of the soil (gleying).
- It should be attempted to enhance the current wetland function.
  - Wetland drivers should be maintained as far as possible.
  - Water quality preservation is key

The specialist concluded that the project can be supported, should all the mitigation measures be implemented and monitored against to ensure compliance and protection of the natural resources.

Lastly a Wetland Assessment was undertaken and found that development site is not directly affected by the wetland, but a wetland occurs to the south of the development footprint. In addition, the infrastructure installations and connections to the external services will impact on this wetland. The Wetland specialist found that the Wetland identified is highly transformed and impacted by historical and ongoing anthropogenic activities. The Present Ecological Status (PES) for the wetland scored in the mid-range for the Unchanneled Valley Bottom Wetland. The Ecological Importance and Sensitivity (EIS) falls in the mid-range and has minimal functionality in respect of bio-diversity conservation. The Recommended Ecological Category (REC) for the wetlands were categorised as moderate. It will thus require some rehabilitation to enhance the ecological function of the system. The wetland is not considered to be sensitive and of any major importance. It must also be noted that the wetland will in all likelihood be majorly impacted by the proposed Metro Boulevard Interchanges that is planned to cross over this section of the wetland. The wetland (SV24) is a small-scale wetland unit that interconnects to a larger wetland system to the west. The wetland (SV24) was also historically

impacted by old farming activities and more recently by the construction of Christiaan DeWet Drive and associated stormwater infrastructure. Be that as it may, it was still suggested that a 15m buffer on the current wetland be accommodated to buffer the development from the wetland. The buffer will suffice in the required management of the development impacts and continuation and maintenance of the wetland drivers. This conservation buffer should be utilised as the control area and will be adequate to assist with management and mitigation during the construction and operation phase. The specialist therefore concluded that the development may go-ahead if the required buffers are maintained and the resource drivers preserved by well-constructed stormwater infrastructure for the Township development. In respect of the construction phase, it is important to ensure that the required erosion protection measures linked to the intersecting sections be carefully designed and installed. It is further important to carefully design the storm water outlet structures to assist with dispersed flow release into the wetland. This should be designed to mimic the natural sheet flow into the wetland and avoid concentrated flow patterns into the wetland area.

### **3. Impact Assessment**

A detailed impact assessment has been undertaken and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (**Appendix I**). Most impacts have a low significance once mitigation measures were applied (please see **Table 12** below for the impact summary for the proposal). The following can be noted:

- During construction, dust emissions and emissions from vehicles will occur but will be of a low significance. A number of mitigation measures will be implemented and will further reduce the intensity of these impacts. During operation, no dust emissions are expected. Vehicle emissions will however occur but can be reduced to a low significance
- Noise impacts will occur throughout construction and operation but will be of a low significance. Mitigation measures will further reduce the significance of this impact.
- The proposed development occurs within close proximity (although only the wetland buffer occurs within the main development footprint. Service infrastructure however will cross the wetland and associated 15m buffer. In terms of impacts, with the proposal, during construction, impacts to water quality, flow, habitat, biota and geomorphology were assessed to be of a low to low-medium significance prior to mitigation and a low significance, with the implementation of necessary mitigation measures including strict adherence to the delineated wetland and buffer other than authorised activities as well as the rehabilitation of the wetland as recommended by the Wetland Specialist. A number of mitigation measures recommended by the Hydropedological Assessment were also taken into account including the recommendation that infill for benching be afforded.
- During operation, the impacts were assessed to be of low significance and the implementation of a proper stormwater management plan will ensure reduced impacts. In all cases, the proposal reduces the impact to the wetland as it limits the construction activities within the wetland.
- Waste in the form of domestic waste, hazardous waste and construction waste will be generated. However, the impacts related to this can be mitigated to 'low' with the implementation of a number of mitigation measures. During operation, domestic waste will be generated but will be collected into the municipal waste stream. Impacts related to waste generation can be mitigated to a low significance.
- Whist, soil alteration impacts such as loss of topsoil, loss of land capability, alteration of topography, soil erosion and soil pollution will occur and have a medium to low significance before mitigation, these are not felt to be significant due to the currently degraded nature of the site. Where possible, mitigation measures have been suggested to reduce the significance of the impacts to low-medium/low. Impacts are not applicable during operation.
- In terms of resource consumption, no electricity usage is expected during construction. Further, in terms of water consumption, fuel consumption and raw material consumption, impacts can be considered to be of a low significance. During operation, electricity, fuel and raw material consumption will take place but will be of a low to low-medium to low significance after mitigation.
- Impacts related to effects on biodiversity were also assessed. These included loss of habitat (including loss of sensitive vegetation such as *Hypoxis* sp. and *Boophone* sp.), direct mortality of fauna, disruption of ecological life cycles due to the restriction of species movement, degradation of ecological systems and the Introduction of alien flora affecting native faunal assemblages. Based on the Baseline Ecological Habitat Assessment which found that the study site was disturbed, the significance of these impacts was found to be low to low-medium after mitigation. A number of mitigation measures have been included in the EMP. Importantly, Search, Rescue and Relocation of SCC (*Hypoxis* and *Boophone* species) must be implemented to reduce impacts to sensitive species. During operation, impacts relate to loss of habitat due to stochastic events like fire, loss of fauna due to intentional killing and disruption of ecological life cycles due to restriction of species movement. These impacts

were assessed to be low after mitigation. It should be noted that whilst the sewer connection (51m) and the stormwater pipeline (79m) do occur within the wetland, these impacts can be suitably mitigated. In all cases, the proposal reduces the impact to the wetland as it limits the construction activities within the wetland.

- Potential impacts related to pollution incidents, health and safety, storage of hydrocarbons and fire may occur during construction and operation but can be mitigated through the implementation of the site specific EMPr and will thus have a low significance.
- During construction, the main social impacts will be visual impacts, safety and security, traffic disruptions, loss and loss of sense of place. All these impacts can be successfully mitigated to a low significance. A **positive** impact related to the change of land use is expected as currently the site is degraded. Further, the development of the site will further the objectives of the COJ 2040 SDP and the Region C RSDP. During operation, there will be a positive impact related to safety and security as the development of the site is expected to improve safety in the area. All other impacts can be mitigated to a low significance.
- During construction and operation, a number of **positive** economic impacts will occur relating to an increase in economy and increased employment. These have a medium level of significance after mitigation.

Based on the impact assessment undertaken as well as the findings of the specialist studies and the need for the project, it is the opinion of the EAP, that the impacts related to the proposed development can be satisfactorily mitigated and that **the Proposal be approved.**

#### **Alternative 1**

Alternative 1 involves the development of 58 "Residential 3" units. Whilst attenuation is provided, it occurs within Erf 1328 (i.e. within the wetland). In addition, only one small play area is provided. Lastly, no wetland buffer is provided at all. Whilst the wetland to the south of the site will be destroyed by the development of Metro Boulevard, COJ has requested a 15m buffer and this layout does not meet this requirement as no buffer is provided. This is also not in line with the requirements of the Wetland Specialist.

##### **1. Need for the Project**

The need for both alternatives is the same and thus the full discussion provided above is not repeated here. In summary, the development is in line with the objectives of the Region C RSDP and COJ 2040 SDP. It will also have a positive economic effect in the area through the direct CAPEX of R80 million. In addition, 347 construction related employment opportunities will be created. During operation, 35 permanent positions will also be created. This will also have a number of economic multiplier effects for the local economy.

##### **2. Sensitivity**

As mentioned in the previous Impact Statement, a Wetland Assessment, Hydropedological Assessment, Baseline Ecological Habitat assessment and Heritage Impact Assessment were undertaken and found that the site was disturbed by previous activities. A number of mitigation measures were recommended and have been included in the EMPr.

##### **3. Impact Assessment**

A detailed impact assessment has been undertaken for Alternative 1 and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (**Appendix I**). Based on the impact assessment, Alternative 1 is **not preferred** for the following reason:

- The size of the play area is reduced.
- The proposed attenuation is provided within Erf 1328 and thus occurs within the wetland and wetland buffer. It therefore has a greater impact on interflows.
- It also increases the potential for spills within the wetland habitat.
- It results in a greater area of wetland habitat being cleared for the construction of the attenuation pond.
- Lastly, it encroaches on the Zone 2 of the GPEMF area.

Therefore, from an environmental and social perspective, this alternative is therefore not recommended.

Please see **Table 13** below for the impact summary for Alternative 1.

Based on the impact assessment undertaken as well as the findings of the specialist studies, it is the opinion of the EAP, that Alternative 1 **NOT BE AUTHORISED.**



No-go (compulsory)

The No-Go option involves the option of not developing Erf 1327 and Erf 1328 Strubensbvallei Extension 24 as a Residential development in line with the Conditions of Establishment and Proclaimed township. None of the associated access and services would be developed. Instead, the site will remain vacant and its current degraded and disturbed state.

**1. Need for the Project**

Should the No-go Option be selected, the objectives of Region C RSDP and COJ 2040 SDP will not be met on the specific property. Further, there will be a loss of positive benefits associated with the development including the general improvement of the area and increases in the local economy. Therefore, from a needs perspective, the No-go option is **NOT** preferred.

**2. Impact Assessment**

A detailed impact assessment has been undertaken for No-Go Alternative and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (**Appendix I**).

Based on the impact assessment, the no-go option is **not preferred** for a number of reasons.

- Firstly, and most importantly, the no-go option will result in a loss of the social and economic benefits associated with the proposed development. This **cannot be mitigated to a satisfactory level**.
- Secondly, as the site is vacant and degraded, the option of not developing the site does not result in a significant positive effect in terms of biodiversity or conservation as the site is already disturbed. In addition, with the continuation of current degradation and impacts, the site would remain degraded and there would also be additional safety and security impacts. This would have additional effects on fire safety, property value, soil erosion etc.

Based on the impact assessment undertaken as well as the need for the project, it is the opinion of the EAP, that the No-Go Option **NOT BE AUTHORISED**.

## 6. Impact Summary of the Proposal or Preferred Alternative

For proposal:

Please see **Table 12** for a summary of the impact assessment undertaken. In general, most negative impacts from both construction and operation could be mitigated to a low or low-medium significance with the implementation of the proposed mitigation measures which are included in the EMPr. Further, numerous social and economic benefits are related to proposal which have a medium to medium-high significance. **For this reason, the Proposal is preferred.**

**Table 12: Impact Summary for the Proposal**

Impacts	Comment
<b>Atmospheric Emissions</b>	During construction, dust emissions and emissions from vehicles will occur but will be of a low significance. A number of mitigation measures will be implemented and will further reduce the intensity of these impacts. During operation, no dust emissions are expected. Vehicle emissions will however occur but can be reduced to a low significance.
<b>Noise</b>	Noise impacts will occur throughout construction and operation (to a lesser extent) but will be of a low significance. Mitigation measures will further reduce the significance of this impact.
<b>Impacts to Wetlands</b>	The proposed development occurs within close proximity (although only the wetland buffer occurs within the main development footprint. Service infrastructure however will cross the wetland and associated 15m buffer. In terms of impacts, with the proposal, during construction, impacts to water quality, flow, habitat, biota and geomorphology were assessed to be of a low to low-medium significance prior to mitigation and a low significance, with the implementation of necessary mitigation measures including strict adherence to the delineated wetland and buffer other than authorised activities as well as the rehabilitation of the wetland as recommended by the Wetland Specialist. A number of mitigation measures recommended by the Hydropedological Assessment were also taken into account including the recommendation that infill for benching be afforded.

	<p>During operation, the impacts were assessed to be of low significance and the implementation of a proper stormwater management plan will ensure reduced impacts. In all cases, the proposal reduces the impact to the wetland as it limits the construction activities within the wetland.</p>
<b>Waste Generation</b>	<p>Waste in the form of domestic waste, hazardous waste and construction waste will be generated. However, the impacts related to this can be mitigated to 'low' with the implementation of a number of mitigation measures.</p> <p>During operation, domestic waste will be generated but will be collected and enter the municipal waste stream. Impacts related to waste generation can be mitigated to a low significance.</p>
<b>Soil Alteration</b>	<p>Whilst, soil alteration impacts such as loss of topsoil, loss of land capability, alteration of topography, soil erosion and soil pollution will occur and have a medium to low significance before mitigation, these are not felt to be significant due to the currently degraded nature of the site. Where possible, mitigation measures have been suggested to reduce the significance of the impacts to low-medium/low. Impacts are not applicable during operation.</p>
<b>Resource Consumption</b>	<p>In terms of resource consumption, no electricity usage is expected during construction. Further, in terms of water consumption, fuel consumption and raw material consumption, impacts can be considered to be of a low significance.</p> <p>During operation, electricity, fuel and raw material consumption will take place but will be of a low-medium to low significance after mitigation.</p>
<b>Effects on Biodiversity</b>	<p>Impacts related to effects on biodiversity were also assessed. These included loss of habitat (including loss of sensitive vegetation such as <i>Hypoxis</i> sp. and <i>Boophone</i> sp.), direct mortality of fauna, disruption of ecological life cycles due to the restriction of species movement, degradation of ecological systems and the Introduction of alien flora affecting native faunal assemblages. Based on the Baseline Ecological Habitat Assessment which found that the study site was disturbed, the significance of these impacts was found to be low to low-medium after mitigation. A number of mitigation measures have been included in the EMPr. Importantly, Search, Rescue and Relocation of SCC (<i>Hypoxis</i> and <i>Boophone</i> species) must be implemented to reduce impacts to sensitive species.</p> <p>During operation, impacts relate to loss of habitat due to stochastic events like fire, loss of fauna due to intentional killing and disruption of ecological life cycles due to restriction of species movement. These impacts were assessed to be low after mitigation. It should be noted that whilst the sewer connection (51m) and the stormwater pipeline (79m) do occur within the wetland, these impacts can be suitably mitigated. In all cases, the proposal reduces the impact to the wetland as it limits the construction activities within the wetland.</p>
<b>Incidents, accidents and potential emergency situations</b>	<p>Potential impacts related to pollution incidents, health and safety, storage of hydrocarbons and fire may occur during construction and operation but can be mitigated through the implementation of the site specific EMPr and will thus have a low significance.</p>
<b>Social</b>	<p>During construction, the main social impacts will be visual impacts, safety and security, traffic disruptions, loss and loss of sense of place. All these impacts can be successfully mitigated to a low significance. A <b>positive</b> impact related to the change of land use is expected as currently the site is degraded. Further, the development of the site will further the objectives of the COJ 2040 SDP and the Region C RSDP.</p> <p>During operation, there will be a positive impact related to safety and security as the development of the site is expected to improve safety in the area. All other impacts can be mitigated to a low significance.</p>
<b>Economic</b>	<p>During construction and operation, a number of positive economic impacts will occur relating to an increase in economy and increased employment. These have a medium level of significance after mitigation.</p>

For alternative:

A detailed impact assessment has been undertaken for Alternative 1 and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (Appendix I). For the most part, the impacts for both the proposal and the alternative

are the same, However, based on the impact assessment, Alternative 1 is not preferred for a number of reasons:

- The size of the play area is reduced.
- The proposed attenuation is provided within Erf 1328 and thus occurs within the wetland and wetland buffer. It therefore has a greater impact on interflows.
- It also increases the potential for spills within the wetland habitat.
- It results in a greater area of wetland habitat being cleared for the construction of the attenuation pond.
- Lastly, it encroaches on the Zone 2 of the GPEMF area.

**Therefore, from an environmental perspective, the alternative is not preferred.**

Table 13 below provides a summary of the impacts assessed.

**Table 13: Impact Summary for Alternative 1**

Impacts	Comment
<b>Atmospheric Emissions</b>	During construction, dust emissions and emissions from vehicles will occur but will be of a low significance. A number of mitigation measures will be implemented and will further reduce the intensity of these impacts. During operation, no dust emissions are expected. Vehicle emissions will however occur but can be reduced to a low significance
<b>Noise</b>	Noise impacts will occur throughout construction and operation (to a lesser extent) but will be of a low significance. Mitigation measures will further reduce the significance of this impact.
<b>Impacts to Wetlands</b>	<p>The proposed development occurs within close proximity (although only the wetland buffer occurs within the main (Erf 1327) development footprint). With the alternative, in particular, there is a greater impact on the wetland as the stormwater attenuation will be developed within Erf 1328 (and thus occurs within the wetland). Further, no wetland buffer is provided. Whilst, the wetland will be impacted by the future Metro Boulevard, the wetland specialist has recommended a 15m buffer. This is also in line with the COJ's requirements. Alternative 1 does not take into account a buffer and therefore does not meet these requirements. Further, in terms of impacts, with the alternative, during construction, impacts to water quality, flow, habitat, biota and geomorphology were assessed to be of a low-medium to medium significance prior to mitigation and a low to low-medium significance, with the implementation of necessary mitigation measures. During operation, the impacts were assessed to be of low significance and the implementation of a proper stormwater management plan will ensure reduced impacts.</p> <p><b>However, the alternative is not preferred as the stormwater attenuation is within the wetland and therefore has a greater impact on interflows. It also increases the potential for spills within the wetland habitat. Lastly, it results in a greater area of wetland habitat being cleared for the construction of the sewer line. From an environmental perspective, this alternative is therefore not recommended.</b></p>
<b>Waste Generation</b>	Waste in the form of domestic waste, hazardous waste and construction waste will be generated. However, the impacts related to this can be mitigated to 'low' with the implementation of a number of mitigation measures. During operation, domestic waste will be generated but will be collected and enter the municipal waste stream. Impacts related to waste generation can be mitigated to a low significance.
<b>Soil Alteration</b>	Whilst, soil alteration impacts such as loss of topsoil, loss of land capability, alteration of topography, soil erosion and soil pollution will occur and have a medium to low significance before mitigation, these are not felt to be significant due to the currently degraded nature of the site. Where possible, mitigation measures have been suggested to reduce the significance of the impacts to low-medium/low. Impacts are not applicable during operation.
<b>Resource Consumption</b>	In terms of resource consumption, no electricity usage is expected during construction. Further, in terms of water consumption, fuel consumption and raw material consumption, impacts can be considered to be of a low significance. During operation, electricity, fuel and raw material consumption will take place but will be of a low-medium to low significance after mitigation.

<b>Effects on Biodiversity</b>	<p>Impacts related to effects on biodiversity were also assessed. These included loss of habitat (including loss of sensitive vegetation such as <i>Hypoxis</i> sp. and <i>Boophone</i> sp.), direct mortality of fauna, disruption of ecological life cycles due to the restriction of species movement, degradation of ecological systems and the Introduction of alien flora affecting native faunal assemblages. Based on the Baseline Ecological Habitat Assessment which found that the study site was disturbed, the significance of these impacts was found to be low to medium -high after mitigation. A number of mitigation measures have been included in the EMPr. Importantly, Search, Rescue and Relocation of SCC (<i>Hypoxis</i> and <i>Boophone</i> species) must be implemented to reduce impacts to sensitive species. However, for the alternative, the attenuation occurs within the wetland and thus the impacts are higher.</p> <p>During operation, impacts relate to loss of habitat due to stochastic events like fire, loss of fauna due to intentional killing and disruption of ecological life cycles due to restriction of species movement. These impacts were assessed to be low after mitigation.</p> <p>Due to the fact that the alternative has a greater impact on the wetland habitat as well as the Zone 2 of the GPEMF, it is not preferred from an environmental perspective.</p>
<b>Incidents, accidents and potential emergency situations</b>	<p>Potential impacts related to pollution incidents, health and safety, storage of hydrocarbons and fire may occur during construction and operation but can be mitigated through the implementation of the site specific EMPr and will thus have a low significance.</p>
<b>Social</b>	<p>During construction, the main social impacts will be visual impacts, safety and security, traffic disruptions, loss and loss of sense of place. All these impacts can be successfully mitigated to a low significance. A positive impact related to the change of land use is expected as currently the site is degraded. Further, the development of the site will further the objectives of the GPEMF and Regional SDP. During operation, there will be a positive impact related to safety and security as the development of the site is expected to improve safety in the area. All other impacts can be mitigated to a low significance.</p>
<b>Economic</b>	<p>During construction and operation, a number of positive economic impacts will occur relating to an increase in economy and increased employment. These have a medium level of significance after mitigation.</p>

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

When assessing the alternatives, the following was assessed:

- The results of the impact assessment; and
- The need for the project.

Taking into account the findings of the specialist study, a detailed impact assessment was undertaken for both the Proposal and the alternative (Alternative 1) as well as the No-Go Option. A summary of the findings is provided in **Table 12** and **Table 13** above. They show that the following impacts were expected to be similar for both the alternative and the proposal:

- Atmospheric Emissions;
- Noise;
- Waste Generation;
- Soil Alteration;
- Resource Consumption;
- Incidents, accidents and potential emergency situations; and
- Social.

Where impacts differed was in terms of impacts to wetlands and impacts to biodiversity. The reasons for that were as follows:

- Impacts to wetlands:

- In regards to the impact to wetlands, the proposal limits the impact to the wetland as the attenuation is provided within Erf 1327 (outside the wetland and 15m wetland buffer).
- The alternative sewer line therefore has a greater impact on interflows.
- It also increases the potential for spills within the wetland habitat.
- Lastly, it results in a greater area of wetland habitat being cleared for the construction of the sewer line.
- A 15m buffer is also provided in the proposal as required by the wetland specialist and the COJ.
- Impacts to biodiversity:
  - The main difference between the proposal and the alternative is the extent of wetland habitat that will be cleared. With the alternative, the attenuation is provided in Erf 1328 and is therefore in the wetland as well as Zone 2 of the GPEMF.

**On this basis, it is felt that Proposal should be authorised.**

## 7. Spatial Development Tools

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The following spatial development tools were applied and/or considered:

- The GDARD C-PLAN and environmentally sensitive layers were utilized during the compilation of this report to identify biodiversity specialist reports as well as possible sensitive areas within the area. The site occurs within areas identified as ESA and CBA: Important Area. However, the aseline Ecological Status Assessment found that the site was degraded and no longer consistent with primary vegetation.
- The South African National Biodiversity Institute (SANBI) provides a database, namely the Botanical Database of Southern Africa (BODATSA) which was used by the Ecological specialist to determine sensitive flora species on site.
- Data from the South African Bird Atlas Project (SABAP2) was also utilized to identify potentially occurring bird species in and around the site.
- The FitzPatrick Institute of African Ornithology - Virtual Museum website was also utilized.
- The Gauteng Provincial Environmental Management Framework was utilized in the compilation of this report. The proposed development occurs within Zone 1 which is the urban development zone. Erf 1328 which will remain public open space occurs within Zone 2 (Sensitive Zone within the UDZ). The impact to this sensitive zone is therefore limited to sewer connection to the existing line and the stormwater pipeline. However, in contract, with the alternative, the stormwater attenuation pond occurs within Zone 2 and therefore has a bigger impact on it.
- The National Wetland Map version 5 (NWM5) as presented by SANBI was utilized to understand wetlands in and around the study area.
- The National Freshwater Ecosystem Priority Areas (NFEPA) Wetlands layer was also scrutinised.

## 8. Recommendation of the Practitioner

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).

YES ✓	NO
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If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

Not applicable.

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Based on the findings of the specialist studies and impact assessment and taking into account the successful implementation of the EMPr, it is felt that the **Proposal should be authorised.** The reasons for this opinion are as follows:

- The proposal includes a 15m buffer which is recommended by the wetland specialist and will assist with the required management of the development impacts and continuation and maintenance of the wetland drivers despite the planned Metro Boulevard.
- In addition, the proposal includes larger play areas which is preferred from a social perspective.
- Lastly, the proposal includes the necessary attenuation within the development footprint (Erf 1327) and is therefore outside the wetland or wetland buffer.

The following are recommended conditions for inclusion in the EA:

- The **proposed layout** should be implemented;
- A copy of the Final SDP must be submitted to GDARD once finalised as part of the townplanning process.
- An Environmental Control Officer (ECO) should be appointed to ensure compliance to the authorisation and EMPr. Weekly construction monitoring together with six-monthly full environmental audits is recommended;
- As required by the Baseline Ecological Habitat Assessment, the following should be undertaken:
  - Rescue and relocation of the *Boophone disticha* and *Hypoxis hemerocallidea*;
  - The wetland buffer area should be pegged out before any construction activities commence. See mitigation measures of the Wetland Report (Refer to Wetland Report, (22040 WPES Botha, D); and

- Minimising the further loss of fauna and flora habitat by strictly keeping construction activities within the footprint of the proposed study area.
- Only authorised activities will be allowed within the wetland and wetland buffer zone delineated by the wetland specialist (Refer to Wetland Report, (22040 WPES\_Botha, D). This area should be declared as a 'no-go' area during the pre-construction and construction phase.
- All construction activities including laydown areas and service roads should strictly be kept within the study area;
- A qualified environmental control officer (ECO) should be appointed during the pre-construction and construction phase. The ECO should during the pre-construction phase identify species that will be directly impacted during the construction phase and should therefore form part of the rescue and relocate project. This also includes species of fauna and flora to be found during the construction phase. The ECO should furthermore also be present during the pegging out of the wetland buffer and clearing of vegetation within close proximity of the wetland buffer;
- Areas on site that will be denuded during the construction phase should be vegetation with indigenous vegetation to prevent the loss of topsoil due to erosion activities such as wind and flooding; and
- An alien vegetation management plan for the site should be compiled and implemented throughout the construction phase.
- As required by the Hydropedological Assessment:
  - It is suggested that suitable infill for benching be afforded, primarily as the site holds the entire hillslope (via the plug) in balance. Infilling of suitable materials will provide for the increased capacity of the site to mitigate future envisaged developments along the bottom of the site (i.e. the construction of the Metro Boulevard and intersection with Christiaan de Wet Road), simultaneously allowing for minimal destruction of the existing hillslope 'plug'.
  - Where shallow interflow is dominated by deep interflow, a separate/unique mitigation must be afforded. The implicit flowpath is of high flux and reduction value, relative to the surrounding soils.
  - The following are recommended:
    - Onsite consultation with hydropedologist prior and during services installation
    - Onsite consultation with hydropedologist prior and during cut and fill design (levels to be determined)
    - Bedrock was not encountered during the survey. (Geo-tech report also corroborates same). Soil rock interface was not encountered due to limitation of the use of TLB machinery. Hand auguring was not permissible due to the hardness of the material. It is thus recommended that a mechanical (drill type) investigation be conducted to confirm bedrock conditions.
    - The topological backslope area should be further investigated in terms of the annual duration of saturation as factor for the reduction i.e. maturation of the soil (gleying).
    - It should be attempted to enhance the current wetland function.
      - Wetland drivers should be maintained as far as possible.
      - Water quality preservation is key
- As required by the Heritage Impact Assessment:
  - Implementation of a chance find procedure;
- As required by the Wetland Assessment:
  - On site storm water management must be implemented.
  - Ingress and Egress must be managed to minimise impacts in respect of compaction of the wetland soils.
  - Single entry and exit points must be established.
  - These areas must be scarified as part of the rehabilitation plan.
  - Stock piling must be located outside the delineated wetland and buffer boundaries.
  - The proposed activities must be initiated and constructed in such a way to prevent the reduction of natural water flow into the wetland and downstream which, in essence, is the driving factor in terms of water provision.
  - An approved stormwater management plan must be implemented.
  - Velocity dissipation structures and sheet flow structures (such as reno mattresses) must also be installed to prevent water flowing through culverts to gain velocity and be released uncontrolled.
  - Dispersed flow must be attained post formal structures.
  - Sheet flow must be promoted to mimic natural flow patterns.
  - Removal of alien and invasive plant species during the construction and operational phases.
  - Stabilisation of gullies and drainage lines to prevent erosion.

- Implementation of topsoil management (stockpiling, topography shaping) and erosion control (berms, geotextiling, silt fences, hay bales and gabion structures).
- Re-vegetation with indigenous plant species.
- As required by the Stormwater Management Plan:
  - Sandbags and soil trenches and berms will be implemented during the construction phase at areas that may pose a safety risk due to increased stormwater flow.
  - These will be maintained during the construction phase and monitored by the site engineer on a weekly basis.
  - The attenuation pond mass earthworks will start immediately on site and will act as temporary rainwater storage areas during the construction phase all water will be directed to the pond.
- As required by the Traffic Impact Statement:
  - The study found that the proposed residential development will generate 59 trips, during the weekday morning and weekday afternoon peak hours respectively. Thus, no external road upgrade is required to accommodate the development trips.
  - The following site assess is required:
    - Access from a cul-de-sac which intersects with Fiddle Avenue (previously known as Sharon Road).
    - The minimum lane width should be 3.0m. In the event lanes are separated by a raised median island, then one lane should have a minimum width of 4.5m (to accommodate refuse and emergency vehicles).
    - A minimum throat length of 5m is proposed. Distance measured from the property boundary to the centre of the access control.
    - Access bellmouth on local authority road to have a minimum radius of 10.0m.
    - Provide a 2.0m paved sidewalk along the northern side of the cul-de-sac, serving the applicant site.
- As required by the Geotechnical Assessment:
  - Two site classes were identified:
    - Site Class S1 (10-20mm consolidation settlement); and
    - Site Class S (less than 10mm consolidation settlement).
  - The following recommendations were provided for Zone S1:
    - Special foundation precautions to be put in place. Potential options for this include: Stiffened Strip Footings, Soil Raft or Compaction of Soils below Individual footings.
    - It is imperative that good site drainage is provided around individual structures and excess moisture should not be allowed to accumulate adjacent to foundations.
  - The following recommendations were provided for Zone S:
    - Structures within this zone should be founded using normal strip footings.
    - Foundations should be on uniform material, and should footings straddle differing ground conditions, it is recommended that the whole structure be placed on a soil mattress.
    - Good site drainage should be provided around individual structures and excess moisture should not be allowed to accumulate adjacent to foundations.



## 9. The Needs and Desirability of the Proposed Development (As Per Notice 792 Of 2012, or the updated version of this Guideline)

The need and desirability of the proposed development was assessed in terms of Notice 891 of 2014 which is the updated guideline available regarding need and desirability. In line with this, the consideration of "need and desirability" included consideration of the strategic context of the proposed development along with the broader societal needs and the public interest.

The proposed Strubensvalley Ext. 24 will involve the development of Erf 1327 and Erf 1328. The following rights are applicable to Erf 1327:

- Zoning Residential 3
- Site Area 1.9724 ha
- Height 3 Storeys (with council consent))
- Coverage 40%
- Floor Area Ratio (FAR) 0.4
- Density 40 units per hectare
- Number of units 72 units
- Number of Parking Bays 166 parking bays
- Refuse Area Details 41 m<sup>2</sup>

Erf 1328 will not be developed but will remain public open space.

The site is affected by the future Metro Boulevard planned by the Johannesburg Roads Agency which is excluded from the project footprint. Necessary access, internal roads and services will also be put in place as follows:

- Water Services - A new 110 mm diameter mPVC pipe (SANS 1283) will be put in place within the new access road and will connect to this existing pipe. The length of this connection is approximately 180m.
- Sewer Services - A new 160mm-diameter uPVC CL 400 H/D pipe will connect into the existing sewer system by means of a new manhole. This new connection pipeline is approximately 51m in length.
- Stormwater services - An internal stormwater reticulation system will be put in place and will utilize 160mm and 300mm pipes to direct stormwater to 300mm and 375mm OGEE pipe which will run down the eastern side of the development and lead to a stormwater attenuation pond which will be approximately 231 m<sup>2</sup> in extent. From there, a 450mm OGEE pipe will discharge water under the proposed Metro boulevard into Erf 1348. The length of this pipe is approximately 79m.
- Access - The site access will be provided from the cul-de-sac intersecting with Fiddle Avenue. As part of the development, this new cul-de-sac and new section of surfaced road extending to the existing Fiddle Avenue road surface will be constructed to council standards and handed over to council upon completion and acceptance of the road infrastructure. This road will include one inbound lane with a minimum width of 3.0m and one outbound lane with a minimum width 4.5m. A 2m paved sidewalk along the northern side of the cul-de-sac will also be provided.

In terms of the need and desirability of the project, it should be noted that the proposed development will further the objectives of the Region C Regional Spatial Development Plan (RSDF) by supporting the development, infill and densification of Sub Area 7 within the Urban Development Boundary (UDB) (Intervention 1 of Development Objective 1). This includes the following guidelines:

- Support residential densities of between 40-60 dwelling units/ha to promote infill; and
- Development with the Urban Development Boundary"

The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.

The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and

diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvalley Extension 24 development, does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.

Lastly, the development footprint of proposed development falls within Zone 1: Urban Development Boundary (UDB) of the Gauteng Provincial Environmental Management Framework (GPEMF). The intention of this zone is *“to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the COJ Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.”* The proposed development is therefore in line with the GPEMF. Whilst Erf 1328 falls within Zone 2 of the GPEMF, this erf will be zoned as Public Open Space and will not be developed.

Lastly the proposed development will provide numerous economic benefits. Firstly, during construction, there will be a direct CAPEX of R80 million. Secondly, 347 construction related employment opportunities will be created. During operation, 35 permanent positions will be created. This will also have several economic multiplier effects for the local economy.

Further, a detailed impact assessment process including specialist assessment has been undertaken and shows that impacts related to the proposed development can be satisfactorily mitigated. In addition, the construction of the proposed development will result in employment opportunities in the area.

The following questions have also been addressed in line with the Guideline for Need and Desirability (Notice 891 of 2014).

**Table 14: Need and Desirability**

Question from the Need and Desirability Guideline	Response
<b>Securing ecological sustainable development and use of natural resources</b>	
How will this development (and its separate elements / aspects) on the ecological integrity of the area?	<p>A Baseline Ecological Status Assessment and Wetland Assessment were undertaken and included in the BAR. Both studies did not envision significant negative impacts due to existing disturbed nature of the site.</p> <p>Therefore, it is not expected that the proposed development will negatively impact on the ecological integrity of the area as the site is not pristine and has been degraded by historical use. In addition, the 15m wetland buffer which falls within the Erf 1327 (the development footprint) will not be developed and Erf 1328 will remain as public open space. Whilst the sewer connection and stormwater pipeline will traverse the wetland, these are limited in extent (51m and 79m respectively). It is therefore not expected that these will cause significant impacts to ecological integrity as long as the necessary mitigation and designs are implemented. In addition, with the proposal, impacts are reduced through limited the impact to the wetland. <b>The proposal is therefore preferred.</b></p>
<p>How were the following ecological integrity considerations taken into account?</p> <ul style="list-style-type: none"> <li>• Threatened Ecosystems</li> <li>• Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure,</li> </ul>	<p>A Site Verification Assessment was undertaken and included assessment of sensitivity was undertaken initially to identify listed activities and determine necessary specialist studies.</p> <p>This included an assessment of the following:</p> <ul style="list-style-type: none"> <li>• Threatened ecosystems;</li> <li>• CBAs and ESAs;</li> <li>• Sensitive features such as wetlands; and</li> <li>• Agricultural Potential.</li> </ul>

<ul style="list-style-type: none"> <li>• Critical Biodiversity Areas (“CBAs”) and Ecological Support Areas (“ESAs”)</li> <li>• Conservation targets,</li> <li>• Environmental Management Framework,</li> <li>• Spatial Development Framework, and</li> <li>• Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.</li> </ul>	<p>Based on this, a Baseline Ecological Habitat Assessment was undertaken and included in the BAR. The study did not envision significant negative impacts due to existing disturbed nature of the site.</p> <p>Further, a wetland assessment was undertaken and found that all impacts could be satisfactorily mitigated. He thus recommended the development proceed.</p>
<p>How will this development disturb or enhance ecosystems and / or result in the loss or protection of biological impacts that could not be avoided altogether, what measures were explored to minimize and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>A Baseline Ecological Habitat Assessment and Wetland Assessment were undertaken and included in the BAR. Both studies did not envision significant negative impacts due to existing disturbed nature of the site.</p> <p>Further, mitigation measures suggested by the specialists have been incorporated into the EMPr.</p> <p>Lastly, in order to reduce the significance of the impact to the wetland, the proposal is recommended and limits the construction footprint in this area.</p>
<p>How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimize and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>Potential pollution has been assessed as part of the impact assessment and is not expected to be significant in either the construction or operation phase.</p>
<p>What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimize, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	<p>During construction, construction waste will be produced whilst during operation, domestic waste related to the proposed development will be produced.</p> <p>The EMPr includes a waste management plan that aims to ensure measures to minimize, reuse and/or recycle the waste are incorporated into the development.</p>
<p>How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimize and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The proposed development does not involve the mining of non-renewable resources. However, some natural resources will be required during construction. A detailed impact assessment was undertaken and did not find significant impact to natural resources.</p>
<p>How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardize the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimize the use of resources? What measures were taken to ensure responsible and equitable use of the</p>	<p>A Baseline Ecological Habitat Assessment and Wetland Assessment were undertaken and included in the BAR. Both studies did not envision significant negative impacts due to existing degraded nature of the site.</p> <p>The location of the site is in line with the Region C RSDP and COJ 2040 SDP for the area.</p> <p>Further, energy saving measures will also be incorporated at the detailed design phase to minimise energy requirements. As such,</p>

<p>resources? What measures were explored to enhance positive impacts?</p> <ul style="list-style-type: none"> <li>• Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. dematerialized growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</li> <li>• Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?).</li> <li>• Do the proposed location, type and scale of development promote a reduced dependency on resources?</li> </ul>	<p>buildings must comply with NHBC requirements.</p>
<p>How were a risk-averse and cautious approach applied in terms of ecological impacts?</p> <ul style="list-style-type: none"> <li>• What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</li> <li>• What is the level of risk associated with the limits of current knowledge?</li> <li>• Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</li> </ul>	<p>A risk-averse and cautious approach has been undertaken. The following has reference:</p> <ul style="list-style-type: none"> <li>• The specialist studies will identify gaps which will then be noted in both the specialist report and BAR.</li> <li>• The impact assessment which was undertaken will specifically deal with gaps identified by specialists and/or lack of information through the assessment of 'Level of Confidence'.</li> <li>• The EMPr provides numerous mitigation measures to ensure that impacts identified to be a 'low' risk can be further mitigated.</li> </ul>
<p>How will the ecological impacts resulting from this development impact on people's environmental right in terms following:</p> <ul style="list-style-type: none"> <li>• Negative impacts e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimize, manage and remedy negative impacts?</li> <li>• Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</li> </ul>	<p>A detailed impact assessment was undertaken and did not identify any significant impacts to people's environmental rights. The site is disturbed and the wetland buffer which falls within the proposed development will not be developed. Whilst some of the services will traverse the wetland, the impact of this is reduced through the selection of the proposal which includes the stormwater attenuation outside the wetland buffer.</p>

<p>Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?</p>	<p>A detailed impact assessment was undertaken and did not identify any significant impacts to ecosystem services. The site is disturbed and the wetland buffer which falls within the proposed development will not be developed. A Heritage Impact Assessment was also undertaken and did not identify any heritage on site. Lastly, there will be positive economic impacts related to the development.</p>
<p>Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?</p>	<p>It is not expected that the development will negatively impact on the ecological integrity objectives of the area. The site is degraded and is not sensitive. Whilst some services traverse more sensitive areas (such as wetland), the impact of this is limited through the implementation of the recommended mitigation measures. Further, the proposal limits impacts to the wetland as the stormwater attenuation occurs outside the wetland buffer area.</p> <p>More information is provided in the specialist studies and impact assessment.</p>
<p>Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?</p>	<p>Two layout alternatives are being investigated as part of the Basic Assessment process and are as follows:</p> <ul style="list-style-type: none"> <li>• Proposal</li> <li>• Alternative 1.</li> </ul> <p>The proposal involves of 72 "Residential 3" units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg.</p> <p>In contract, Alternative 1 involves the development of 58 "Residential 3" units. Whilst attenuation is provided, it occurs within Erf 1328 (i.e. within the wetland). In addition, only one small play area is provided. Lastly, no wetland buffer is provided at all. Whilst the wetland to the south of the site will be destroyed by the development of Metro Boulevard, COJ has requested a 15m buffer and this layout does not meet this requirement.</p> <p>A detailed impact assessment has been undertaken for both the Proposal and the Alternative 1 and assessed the types of impact, duration of impacts, likelihood of potential impacts as well as the overall significance of the impact occurring (Appendix I1). Based on the impact assessment, Alternative 1 is <u>not preferred</u> for the following reason:</p> <ul style="list-style-type: none"> <li>• The size of the play area is reduced.</li> <li>• The proposed attenuation is provided within Erf 1328 and thus occurs within the wetland and wetland buffer. It therefore has a greater impact on interflows.</li> <li>• It also increases the potential for spills within the wetland habitat.</li> </ul>

	<ul style="list-style-type: none"> <li>• It results in a greater area of wetland habitat being cleared for the construction of the attenuation pond.</li> <li>• Lastly, it encroaches on the Zone 2 of the GPEMF area.</li> </ul> <p>Therefore, from an environmental perspective, this alternative is therefore not recommended.</p> <p>The Proposal has therefore been identified as the Best Practicable Environmental Option as the development footprint (save from the necessary sewer connection and stormwater pipe) all occur within Erf 1327 and outside the wetland and wetland buffer. This reduces impacts to wetland interflows. It also reduces potential water quality issues. Lastly, the proposal does not encroach on the Zone 2 of the GPEMF whilst the alternative does. It also increases the size of the play area which is preferred from a social perspective.</p>
<b>Promoting justifiable economic and social development</b>	
<p>What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?</p> <ul style="list-style-type: none"> <li>• The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any strategic plans, frameworks of policies applicable to the area,</li> <li>• Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.).</li> <li>• Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and</li> <li>• Municipal Economic Development Strategy ("LED Strategy").</li> </ul>	<p>The proposed development aims to provide necessary residential developments. The proposed development occurs Sub Area 7. In terms of the Intervention 1 of Development Objective 1 development in this area should support development, infill and densification within the Urban Development Boundary (UDB). This includes the following guidelines:</p> <ul style="list-style-type: none"> <li>• Support residential densities of between 40-60 dwelling units/ha to promote infill; and</li> <li>• Development with the Urban Development Boundary"</li> </ul> <p>The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.</p>
<p>Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</p> <ul style="list-style-type: none"> <li>• Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</li> </ul>	<p>The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvalley Extension 24 development, does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.</p>
<p>How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</p>	

	<p>In addition, from a town planning point of view, the proposed township's Conditions of Establishment have been issued and the proclamation notice published. The development is therefore in line with the required Municipal objectives for the site.</p>
<p>Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?</p>	<p>A detailed impact assessment has been undertaken and all identified impacts can be satisfactorily mitigated. Significant inequitable (intra- and inter-generational) impacts are not expected.</p>
<p>In terms of location, describe how the placement of the proposed development will:</p> <ul style="list-style-type: none"> <li>• Result in the creation of residential and employment opportunities in close proximity to or integrated with each other</li> <li>• Reduce the need for transport of people and goods</li> <li>• Result in access to public transport or enable non-motorized and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),</li> <li>• Compliment other uses in the area</li> <li>• Be in line with the planning for the area,</li> <li>• for urban related development, make use of underutilized land available with the urban edge</li> <li>• optimize the use of existing resources and infrastructure,</li> <li>• opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),</li> <li>• discourage "urban sprawl" and contribute to compaction/densification,</li> <li>• contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs, encourage environmentally sustainable land development practices and processes, take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),</li> <li>• the investment in the settlement or area in question will generate the highest socio-economic returns (i.e an area with high economic potential),</li> <li>• impact on the sensitivities of the area, and</li> <li>• in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</li> <li>•</li> </ul>	<p>The location of the proposed development considered a number of aspects including:</p> <ul style="list-style-type: none"> <li>• Available land; and</li> <li>• Alignment to various planning documents including the Region C RSDP and COJ 2040 SDP.</li> </ul> <p>The following can also be noted:</p> <ul style="list-style-type: none"> <li>• The site is disturbed and the wetland buffer which falls within the Erf 1327 will not be developed.</li> <li>• A Heritage Impact Assessment was also undertaken to ensure the proposed development does not impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics of the site. No heritage resources were identified on site.</li> <li>• The proposed development will create employment during construction and operation.</li> <li>• It also compliments other land uses in the area.</li> <li>• Lastly, the development complies with the COJ town planning requirements</li> </ul>
<p>How were a risk-averse and cautious approach applied in terms of socio-economic impacts?</p>	<p>Other than the Heritage Impact Assessment, no social or economic specialist studies were</p>

<ul style="list-style-type: none"> <li>• What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</li> <li>• What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</li> <li>• Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</li> </ul>	<p>triggered and are required. However, a risk-averse and cautious approach has been undertaken. The following has reference:</p> <ul style="list-style-type: none"> <li>• The Heritage Impact Assessment identified gaps which have been noted in both the specialist report and BAR.</li> <li>• The impact assessment specifically deals with gaps identified by specialists and/or lack of information through the assessment of 'Level of Confidence'.</li> <li>• The EMPr provides numerous mitigation measures to ensure that impacts identified to be a 'low' risk can be further mitigated.</li> </ul>
<p>How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:</p> <ul style="list-style-type: none"> <li>• Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimize, manage and remedy negative impacts?</li> <li>• Positive impacts. What measures were taken to enhance positive impacts?</li> </ul>	<p>A detailed impact assessment has been undertaken and it is not expected that there will be negative socio-economic impacts associated with the development. Instead, the CAPEX value of the project is about R80 million and will create numerous multiplier effects in the area. Further, approximately 347 construction-related and 35 operation-related jobs will be created.</p>
<p>Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilization of natural resources, etc.)?</p>	<p>A detailed impact assessment was undertaken and included an assessment of social and economic impacts as well as ecological impacts. Based on the type of proposed development, it is not expected that the socio-economic impacts will result in significant ecological impacts.</p>
<p>What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?</p>	<p>Two layout alternatives are being investigated as part of the Basic Assessment process and are as follows:</p> <ul style="list-style-type: none"> <li>• Proposal</li> <li>• Alternative 1.</li> </ul> <p>The proposal involves of 72 "Residential 3" units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg.</p> <p>In contract, Alternative 1 involves the development of 58 "Residential 3" units. Whilst attenuation is provided, it occurs within Erf 1328 (i.e. within the wetland). In addition, only one small play area is provided. Lastly, no wetland buffer is provided at all. Whilst the wetland to the south of the site will be destroyed by the development of Metro Boulevard, COJ has requested a 15m buffer and this layout does not meet this requirement.</p> <p>These alternatives were assessed and the Proposal has been identified as the Best Practicable Environmental Option as impacts to the wetland and Zone 2 will be reduced.</p>



	Both the proposal and alternative had similar impacts and benefits from a socio-economic benefits.
What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	<p>A detailed BAR process is currently being undertaken. This includes the assessment of alternatives, compilation of a detailed impact assessment and undertaking relevant specialist studies.</p> <p>Two layout alternatives are being investigated as part of the Basic Assessment process and are as follows:</p> <ul style="list-style-type: none"> <li>• Proposal</li> <li>• Alternative 1.</li> </ul> <p>The proposal involves of 72 "Residential 3" units as well as the necessary attenuation outside the wetland and wetland buffer area. Two play areas are also provided (at the entrance of the development and along the south-eastern boundary). Most importantly, this layout includes a 15m buffer area which was requested by the City of Johannesburg.</p> <p>In contract, Alternative 1 involves the development of 58 "Residential 3" units. Whilst attenuation is provided, it occurs within Erf 1328 (i.e. within the wetland). In addition, only one small play area is provided. Lastly, no wetland buffer is provided at all. Whilst the wetland to the south of the site will be destroyed by the development of Metro Boulevard, COJ has requested a 15m buffer and this layout does not meet this requirement.</p> <p>These alternatives were assessed and the Proposal has been identified as the Best Practicable Environmental Option as impacts to the wetland and Zone 2 will be reduced.</p> <p>Both the proposal and alternative had similar impacts and benefits from a socio-economic benefits.</p>
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	A number of specialist studies have been undertaken to ensure that the proposed development is sustainable and does not result any negative impacts to disadvantaged persons.
What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	<p>In identifying the potential impacts associated with the development, the full lifecycle was assessed as well as the findings of specialist studies.</p> <p>Further, the full EMPr includes the roles and responsibilities for the development and ensures that the responsibility of the implementation of the EMPr falls to the developer.</p>
<p>What measures were taken to:</p> <ul style="list-style-type: none"> <li>• ensure the participation of all interested and affected parties,</li> <li>• provide all people with an opportunity to develop the understanding, skills</li> </ul>	<p>A detailed public participation process is being undertaken as part of the BAR process.</p> <p>As part of this, a detailed Interested and Affected Party (I&amp;AP) Database was compiled and included City of Johannesburg, Department of</p>

<p>and capacity necessary for achieving equitable and effective participation</p> <ul style="list-style-type: none"> <li>• ensure participation by vulnerable and disadvantaged persons,</li> <li>• promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, ensure openness and transparency, and access to information in terms of the process,</li> <li>• ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and</li> <li>• ensure that the vital role of women and youth in environmental management and development were recognized and their full participation therein were promoted?</li> </ul>	<p>Water and Sanitation, Gauteng Department of Roads and Transport, and Gauteng Department of Agriculture and Rural Development (GDARD). In addition, the I&amp;AP database included the affected ward councillor of the area. These I&amp;APs have been notified of the BAR process and provided with an opportunity to comment on the Report.</p> <p>Due to the current COVID-19 pandemic and associated State of Emergency, communication has been mostly electronic to ensure compliance to the Disaster Management Regulations. It is felt that public participation has been such to ensure participation by all potentially interested or affected people.</p>
<p>Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low- middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)</p>	<p>The proposed development aims to provide necessary residential developments. The proposed development occurs Sub Area 7. In terms of the Intervention 1 of Development Objective 1 development in this area should support development, infill and densification within the Urban Development Boundary (UDB). This includes the following guidelines:</p> <ul style="list-style-type: none"> <li>• Support residential densities of between 40-60 dwelling units/ha to promote infill; and</li> <li>• Development with the Urban Development Boundary”</li> </ul> <p>The proposed development occurs within the UDB and has a density of 40 units per hectare. It is therefore in line with the RSDF.</p> <p>The development also occurs within the Consolidation Zone within the City of Johannesburg Spatial Development Framework 2040. According to the SDF, this area must be the focus of urban consolidation, infrastructure maintenance, controlled growth, urban management, addressing backlogs (in social and hard infrastructure) and structural positioning for medium to longer term growth. The policy intent in these areas would be to ensure existing and future development proposals are aligned as far as possible with the broader intent of the SDF, specifically in terms of consolidating and diversifying development around existing activity nodes and public transport infrastructure. In this broad area, new development that does not require bulk infrastructure upgrades should be supported. The proposed Strubensvalley Extension 24 development, does not require bulk infrastructure upgrades and is thus in line with the objectives for the consolidation zone.</p>

	In addition, from a town planning point of view, the proposed township's Conditions of Establishment have been issued and the proclamation notice published. The development is therefore in line with the required Municipal objectives for the site.
What measures have been taken to ensure that current and / or future workers will be informed of work that potentially might be harmful to human health or the or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	A site specific EMPr has been compiled and includes include an Environmental Awareness Plan. As part of this, workers will be informed of their rights to refuse work that might be harmful to human health or the environment.
Describe how the development will impact on job creation in terms of, amongst other aspects: <ul style="list-style-type: none"> <li>the number of temporary versus permanent jobs that will be created,</li> <li>whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),</li> <li>the distance from where labourers will have to travel,</li> <li>the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits); and</li> <li>the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.)</li> </ul>	<p>A detailed impact assessment has been undertaken and it is not expected that there will be negative socio-economic impacts associated with the development. Instead, the CAPEX value of the project is about R80 million and will create numerous multiplier effects in the area. Further, approximately 347 construction-related and 35 operation-related jobs will be created.</p> <p>The following can be noted in regards to this:</p> <ul style="list-style-type: none"> <li>The EMPr includes the requirement that local employment should be encouraged to promote skills transfer and development. This will enhance the general area and provide job opportunities to potential job seekers and manage it in the best suitable way.</li> <li>An assessment of the social environment of the area suggests that there is labour available in the area.</li> <li>The proposed development occurs in close proximity to numerous residential developments and thus, the distance labourers will have to commute is not expected to be significant.</li> <li>The proposed development will not result in any losses of any jobs and job-related opportunity costs are not expected.</li> </ul>
What measures were taken to ensure: <ul style="list-style-type: none"> <li>That there were intergovernmental coordination and harmonization of policies, legislation and actions relating to the environment, and</li> <li>That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</li> </ul>	<p>National Legislation i.e. NEMA, NWA, NHRA, NEM:BA were consulted in the preparation of this BAR Report. Provincial guidelines also formed part of the literature review. Spatial development tools also aided the EAP to assess and provide information pertaining to the proposed development.</p> <p>Any comments received from I&amp;APs or organs of state are included in the comments and response register.</p>
Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The site specific EMPr includes realistic and achievable mitigation measures which aim to reduce any negative impacts as well as to enhance any positive benefits associated with the project.
What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects will be paid for	The site specific EMPr includes detailed roles and responsibilities. In addition, a penalty system for contractors will be included.

by those responsible for harming the environment?	
Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	<p>Two layout alternatives are being investigated as part of the Basic Assessment process and are as follows:</p> <ul style="list-style-type: none"> <li>• Proposal</li> <li>• Alternative 1.</li> </ul> <p>A detailed assessment of alternatives was undertaken and took into account the following:</p> <ul style="list-style-type: none"> <li>• The findings of the specialist studies;</li> <li>• The results of the impact assessment; and</li> <li>• The need for the project.</li> </ul>

**10. The Period for which the Environmental Authorisation is Required  
(Consider when the Activity is Expected to be Concluded)**

The proposed period for which the environmental authorization should be valid prior to operation is 10 years with an option to extend if necessary. Should construction not commence within this period, the authorization will lapse, and new authorization process would be required.

However, once the project has commenced, it cannot be seen to have an expiry date (i.e. during the operational phase), because of the nature of the project and because the project is intending to construct permanent infrastructure on the proposed site.

**11. Environmental Management Programme (EMPr) (must include post construction monitoring requirements and when these will be concluded.)**

If the EAP answers "Yes" to Point 7 above then an EMPr is to be attached to this report as an Appendix

EMPr attached



## **SECTION F: APPENDIXES**

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

### **Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)***

Appendix A1 – Site Plan for Proposal and Alternative

Appendix A2 - Locality Maps

Appendix A3 - Sensitivity Maps

### **Appendix B: Photographs**

### **Appendix C: Facility illustration(s)**

### **Appendix D: Route position information**

### **Appendix E: Public participation information**

Appendix E1 – Proof of site notice

Appendix E2 – Written notices issued as required in terms of the regulations

Appendix E3 – Proof of newspaper advertisements

Appendix E4 – Communications to and from interested and affected parties

Appendix E5 – Minutes of any public and/or stakeholder meetings

Appendix E6 - Comments and Responses Report

Appendix E7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix E8 –Comments from I&APs on amendments to the BA Report

### **Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information**

Appendix F1: WULA Technical Report

Appendix F2: Monitoring Plan

Appendix F3: Rehabilitation Plan

### **Appendix G: Specialist reports**

Appendix G1 – Baseline Ecological Status Assessment

Appendix G2 – Wetland Assessment

Appendix G3 – Hydropedological Assessment

Appendix G4 – Heritage Impact Assessment

Appendix G5 –Stormwater Management Plan

Appendix G6 – Outline Scheme Report

Appendix G7 – Traffic Impact Assessment

Appendix G8 – Geotechnical Assessment

### **Appendix H: EMPr**

### **Appendix I: Other information**

Appendix I1 – Impact Assessment

Appendix I2 – Company profile and CVs

Appendix I3 – National Screening Tool Report

Appendix I4 – PP Plan approval

## **CHECKLIST**

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.